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INDEX TO VOLUME LIX

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INDEX TO VOLUME LIX

JANUARY TO JUNE, 1931

This is an alphabetical index of articles and discussions arranged by leading words. It contains occasional cross references. Names of authors and men who discussed the papers are also included. Details of society proceedings, including the titles of papers read,

officers elected, etc., can be located in proceedings under Societies, Editorials, News of the State, Marriages, Deaths. The subjects of editorials also appear alphabetically and are marked (E).

A	Page
Ailes, Arlington. Paper.....	183
Discussion	73, 298
Aldrich, C. A. Paper.....	439
Alguire, Alden. Discussion.....	157
Allen, E. V. Discussion.....	212
Allen, T. D. Discussion.....	52
American College of Physicians' Meeting. (E)	419
Antivivisection Bill Hearing. (E) ..	420
Amputation, Principles of. S. L. Governale, Chicago	37
Amputation of the Tongue, Spontaneous. Louis Schultz, Chicago	402
Andrew, A. H. Discussion.....	29, 216
Anesthesia for Peritonissillar Abscess. M. Reese Guttman, Chicago	217
Anesthesia (rectal) with Avertin. Jos. R. Guttman, Chicago.....	58
Anuria, Non-Obstructive. Edward William White, Chicago	137
Archibald, F. C. Discussion.....	44
Arnold, Lloyd. Paper.....	276
Arnold, Lloyd. Paper	445
Arthritis, Acute Gonorrheal. D. F. Rudnick and H. J. Burstein, Chicago	430
Aschheim-Zondek Test in Tubal Pregnancy. Sidney Klein, Chicago ..	467

B

Baxter, George Edwin. Paper.....	97
Discussion.....	206, 231, 233
Beecher, William L. Paper.....	343
Bell, R. G. Discussion.....	402
Benedetto, J. M. Paper.....	378
Bernard, Leon. Paper.....	119
Bettman, Ralph B. Paper.....	379
Birk, John W. Paper.....	30
Blatt, Maurice L. Paper.....	24
Bowen, Wilbur L. Paper.....	31
Brannon, L. Paper	476
Brian, Victor. Discussion.....	74
Britt, Otis W. Paper.....	108
Brown, Alfred. Paper.....	130

	Page
Burr, A. H. Discussion.....	206, 231
Burstein, H. J. Paper.....	430

C

Cancer Treatment, Comments on. Albert T. Soiland, Los Angeles, Calif.	151
Cancer, Ultimate Cure of. E. G. C. Williams, Danville	156
Carbon Monoxide Poisoning. William D. McNally, Chicago.....	383
Carcinoma, Diagnosis from Blood Serum. Howard M. Jamieson, Chicago	40
Carey, John F. Paper.....	202
Case, James T. Paper.....	191
Cesarean Section. George Kirby Sims, Chicago	372
Chapman, W. D. Paper.....	423
Choroid, Bone Formation in. S. J. Meyer, Chicago	210
Circumcision. Frederick C. Schurmeier, Elgin	319
Cold in Children, Treatment of. William J. Corcoran, Chicago... ..	197
Coleman, E. P. Paper.....	427
Collins, C. U. Discussion.....	296
Colon Obstructed by Post-Operative Adhesions. Paul A. White and Arthur A. Garside, Davenport, Ia.	124
Compensation for Injuries of the Eye. Sanford R. Gifford, Chicago	315
Cooper, Hugh. Discussion.....	235
Cooperative Clinics. Joseph K. Narat, Chicago	461
Corcoran, William J. Paper.....	197
Corneal Infections, Modern Treatment of. Sanford R. Gifford, Chicago	126

CORRESPONDENCE:

A Lie Nailed. W. E. Shallenberger	273
Anti-Vivisection Bill at Springfield. A. C. Ivy.....	274
Cook County Hospital Reorganization. Ellis K. Kerr.....	16

	Page
Delineator Called to Account. Mrs. Gustav Kaufman.....	17
Derogatory Articles Re Medical Subjects. T. O. Freeman....	94
Educational Committee, Work Appreciated. J. R. Wells.....	271
Greater General Practitioner. D. S. Hager	271
Human Problems. G. O. Otrich ..	94
Illinois Opposes Jones-Cooper Bill. W. D. Chapman.....	91
Legislative Committee Called to Arms. John R. Neal.....	14
Maternity and Infant Welfare Supervision. Petra M. Dahl. ..	18
Menaces to Profession. John J. A. O'Reilly.....	14
Normal vs. Convalescent Serum in Poliomyelitis	18
Osteopath and Chiropractor Not Authorized. Oscar E. Carlstrom	91
Palmer, T. B. Sanitarium Extended	15
Public Hospitals in Illinois. Andy Hall	95
State Medicine. A. W. Hornbogen	16
Cottle, M. H. Paper.....	27
Crawford, W. L. Discussion.....	231
Crooks, A. A. Discussion.....	188
Curtis, George M. Paper.....	361
County Tuberculosis Sanitarium, City Located. Cecil M. Jack and Don Lindberg, Decatur.....	400

D

Dandy, Walter E. Paper.....	365
-----------------------------	-----

DEATHS:

Allen, Nimrod B. Kankakee....	403
Armbruster, Henry G. Steeleville	160
Baker, Virgil A. Marion.....	80
Barlow, Nathan. Hines.....	80
Barrows, Ransom Moore, Chicago	160
Bateman, Charles B. Centralia.	324
Beseler, John Francis. Chicago.	160
Blackman, Francis Homer. Geneva	80

	Page		Page		Page
Bley, Walter Clarence. Beards- town.....	408	Littlefield, Harry Augustus. Peoria	160	Annual Meeting.....	246
Boehm, Charles. Highland Park	160	Magill, J. T. Erie.....	408	Annual Meeting, 1931.....	82
Briggs, Henry, Versailles, Ill.		Marshall, Hugh Lorimer. Strong- hurst	408	Antivivisection Bill Hearing....	420
Brittin, William Alexander. Virdin	324	McCumber, Clarence Nicholas. Lewistown	408	Attorney General Re Public Hos- pitals	10
Brown, George Judson, Chicago.		McDonald, Charles Rudolph, Car- lock, Ill.		Billings, Dr., Is Right.....	329
Brydges, James Charles. Chicago	408	McIntire, Marshall Collier. Farmer City	80	Bills of Interest.....	180
Bundy, Corydon De Kalb. Kanka- kee	240	Messner, Albert F. Chicago....	240	Charity, Poorly Selected, a Peril	88
Bundy, Joseph Edward. Sheldon	80	Morgan, Lewis C. Mt. Vernon..	408	Clinic Tour of Europe.....	250
Cannady, Edward Wyatt. East St. Louis.....	160	Moore, Frank Donaldson. Chi- cago	240	Convalescent Serum Center.....	181
Carrico, Mary Leola. Danville..	80	Noble, Joseph Price, Bloomington, Ill.		Corporations Practice Law.....	9
Cantrall, John W. Rochester....	160	Peak, Willis J. Oakland.....	240	Corporation Practice of Medicine	7
Chappelle, Ora Addison. Elgin. 80		Pincus, Maximillian. Chicago..	240	Council of Medical Economics for A. M. A.....	163
Constant, William Edward. St. Charles	408	Porges, Irving Angel. Chicago..	160	Credit Due Medical Profession..	161
Cook, John S. Beecher City....	80	Powell, George P. Dixon.....	408	Dispensaries, Why More in Chi- cago?	245
Du Four, Walter G. Batavia....	160	Rice, Eri Perry. Chicago.....	324	Dreyer, George Peter. Obituary	253
Ecke, Arnim Carl. Chicago.....	160	Rollins, George E. Peoria.....	408	East St. Louis Meeting.....	409
Edmonson, George S. Kankakee	160	Rosenzweig, George K., Chicago.		Educational Committee an Au- thority	88
Fairhall, Joseph, Danville, Ill.		Runnels, John F. Chicago.....	324	Educational Committee in 1930..	10
Fenit, Edward W. Kane.....	408	Rust, John Williams. Willow Springs	240	Educational Committee, January and February	178
Fenwick, Louis Madison, Chicago.		Schmidt, Marie S. Sheridan... 80		Exhibits at Annual Meeting....	83
Fielding, Frederick J. Chicago.	324	Shafer, Joseph C. Noble.....	240	European Clinic Tour.....	169
Forster, Arthur Leopold. Win- netka	408	Sherwood, Francis R. Oak Park	240	Factors of Unrest.....	328
Fuller, Martin Eugene. Chicago	160	Sippy, Asher F. Chicago.....	408	Family Doctor Disappearing?....	413
Gardner, Jay Riley, Chicago.		Smith, Julia Holmes. Chicago. 80		Glen Frank Re Medicine.....	165
Gillis, Hudson McBain. Wood- river	408	Stogol, Jacob B. Chicago.....	408	Happy New Year.....	1
Goetz, Frederick A. Saxony, Ger- many	240	Taylor, Charles B. Lincoln....	408	Health in Illinois.....	3
Halloran, Lester Aloysius. Chi- cago	240	Tieken, Johann Dietrick. Piper City	80	Hemenway, Dr. H. B., Dies....	88
Hamilton, Edwin C. Kankakee..	80	Tombaug, John Letherman. Odell	408	Hospitals, Increasing Importance of	241
Hart, Charles Joseph. Pulaski..	80	Walsh, William E., Morris, Ill.		Hospitals, 90 Per Cent. Non- Profit	163
Hedrick, Edward G. Lorraine..	80	Ware, Harry Alexander. Chicago	160	Hotel Reservations in Philadel- phia	253
Hemenway, Henry Bixby. Spring- field	160	Weinlander, John. Chicago....	408	Illinois State Medical Society, Authority on Socialized Medi- cine	7
Hilsabeck, William Franklin. Windsor	80	Wentch, George Frederic. Earl- ville	240	Illinois State Medical Society, Official Program.....	255
Hinman, Willis Townsend, Mo- line, Ill.		Wipper, Peter Otto, Chicago.		Illinois State Medical Society Program	170
Holton, Henry C. Sidell.....	408	Young, John Logan. Flora.....	408	Inconsistency of Official Family..	87
Hovey, Walter Clark. Nokomis.	324			Induction of President Elect....	411
Howe, Rose Day, Chicago.		Diabetic, Management of the. Clarence J. McMullen, Chicago.	396	Installment Payment	4
Hullhorst, Paul. Topeka.....	408	Diphtheria and Scarlet Fever. Ar- lington Ailes, La Salle.....	183	Jones-Cooper Bill Protest.....	84
Hunt, Ross Edgar. Belvidere... 160		Diseases of Mucous Membrane of the Mouth. Cleveland White, Chicago	146	Juggling Maternity Mortality Sta- tistics	418
Jahp, Minnie. Chicago.....	408	Dodson, John M. Paper.....	291	Lay Public Taking Advantage of Medicine	244
Jentzsch, Ernest. Chicago....	240	Discussion	202	Lord Riddell on English Medi- cine	418
Johnson, Margaret C. Boosing. Chicago	80			Maloy, Dr. Bernard S., Achieves Fame	86
Kean, John. Chicago.....	324			Maternity Act a Flop.....	85
Kennedy, John Albert. Modesto	408			Maternity Bills in Next Congress	326
Kirkpatrick, Robert Booth. Peoria	408			Mayo Criticizes Hospitals.....	245
Knight, Fremont C., Waukegan, Ill.				Mayo, Dr. W. H., Re Premedical Work	169
Laben, George John. Chicago... 240				Medical Ethics and the Laity... 6	
Laing, George Mackay. Cicero.. 324				Medical Profession Should Con- trol Medical Affairs	81
Landman, Anna Cernelia. Chi- cago	160				
Linder, Louis Jacob. East St. Louis	408				

E

Earle, C. A. Discussion.....	189
East St. Louis Meeting. (E)....	409

EDITORIALS:

American College of Physicians, Annual meeting	90
American College of Physicians' Meeting	419
Animal Experimentation.....	336

VOLUME INDEX

v

Page	Page	Page
Medical Socialism Re Malingering 167	Goiter, Mistakes in Diagnosis and Treatment of. Arnold S. Jackson, Madison, Wis. 103	Intestinal Diseases, Epidemiology of. Lloyd Arnold, Chicago..... 445
Medicine Always a Lap Ahead.. 321	Goiter Surgery, Preservation of Parathyroid. Geo. M. Curtis, Chicago 361	Intrapartum Care, Effect on Mother. J. P. Greenhill, Chicago 349
Medical Ethics and the Laity.... 6	Gonorrheal Keratosis. S. J. Sullivan, H. C. Rolnick, and C. J. White, Chicago 45	J
Membership and Fellowship in A. M. A. 245	Governale, S. L. Paper..... 37	Jack, Cecil M. Paper..... 400
Menace to Medicine from Economic Sins 414	Gradle, Harry S. Discussion..... 52	Jackson, Arnold S. Paper..... 103
Ochsner, Dr. E. A., on Justice.. 6	Greene, E. I. Paper..... 338	Jamieson, Howard M. Paper..... 40
Ochsner, on Distribution of Wealth 167	Greenhill, J. P. Paper..... 349	Jenkinson, E. L. Paper..... 130
Old Family Doctor..... 10	Grimes, John M. Paper..... 346	Jones, C. C. Discussion..... 231
Organized Medicine in Illinois.. 326	Grove, J. S. Paper 432	Jones, Horry M. Paper..... 150
Physicians Total One-eighth Free 419	Guttman, Joseph R. Paper..... 58	Joslyn, Arthu E. Paper..... 320
Post-Graduate Work in Chicago 3	Guttman, M. Reese. Paper..... 217	Juggling Maternal Mortality Statistics. (E) 418
Post-Graduate Study in France. 246		K
Reed, Dr. Charles B., Re Lady Godiva 168	H	Kenny, Henry R. Paper..... 378
Rural Medical Service..... 333	Haan, G. W. Discussion..... 187	Kihler, O. A. Paper..... 117
Scientific Exhibit at Annual Meeting 163	Haeblerlin, John B. Paper..... 142	Kirkwood, Tom. Discussion..... 74
Scientific Exhibit 268	Haeblerlin, John B. Discussion... 228	Klein, Sidney. Paper 467
Section on Public Health and Hygiene Program..... 162	Hagens, E. W. Paper 437	Koehler, G. Paper..... 200
Socialism a Failure in Medicine 417	Harger, John R. Discussion..... 137	Discussion 297
Socialization of Obstetrics..... 327	Hayden, A. A. Discussion..... 29	L
Standardization in New Blight... 225	Health Appraisal of Apparently Healthy Persons. John M. Dodson, Chicago 291	Laibe, J. E. F. Paper..... 449
Too Many Laws 411	Hecht, Rudolph. Paper..... 366	Lash, A. F. Paper..... 473
West, Apologies to Doctor..... 327	Heineck, Aime Paul. Paper..... 388	Lee, H. P. Discussion..... 111
Women's Auxiliary to A. M. A. 254	Heineck, Aime Paul. Paper..... 388	Lindberg, Don. Paper..... 400
Women's Auxiliary to State Medical Society 248	Hernia in Early Infancy. Aime Paul Heineck, Chicago 388	Lord Riddell on English Medicine. (E) 418
Women's Auxiliary State Society 178	Higgins, Samuel G. Paper..... 340	M
Epididymitis, Treatment of Acute. J. E. F. Laibe, Chicago..... 449	Holes at Macula, Histopathology of. M. F. Folk, Chicago..... 207	Marriages.....158, 237, 323, 405
Esophagus, Spasm of, E. W. Hagens, Chicago 437	Horwitz, Herman L. Paper..... 280	MARRIAGES:
F	Hull, T. G. Discussion..... 279	Allen, Thomas Dyer. Evanston. 405
Family Doctor Disappearing? (E). 413	Hygiene, Personal and Public Health. G. Kochler, Chicago... 200	Brewster, Bert M. Fieldon.... 323
Fascia Sutures in Repair of Inguinal Hernia. William J. Pickett, Chicago 227	Hyperesthetic Rhinitis and Asthma Re Digestive Ferment. William L. Beecher, Chicago 343	Gasteyer, Theodore H. Wilmette 158
Finley, Clyde A. Discussion.... 145	I	Linson, John Henry. Chicago.. 158
Flinn, F. Discussion..... 45	Impotency as Seen by the Urologist. C. Otis Ritch, Chicago... 357	Leonard, George R. Chicago... 237
Folk, M. F. Paper..... 207	Induction of President-Elect. (E).. 411	Moorehead, Frederick B. Chicago 323
Discussion 212	Industrial Medicine, Non-Surgical. H. W. Newman, Cincinnati.... 470	Rockey, Laurence F. Orangeville 158
Fowler, E. B. Paper..... 438	Infantile Paralysis, Problems of. Edwin W. Ryerson, Chicago.... 234	Samuel, Jacob. Chicago..... 158
Fuller, William. Discussion..... 35	Infections of Female Generative Tract. A. F. Lash, Chicago.... 473	Shangs, Joseph. Chicago..... 323
G	Injuries of the Head, Diagnosis and Treatment. Walter E. Dandy, Baltimore, Md. 368	Siegel, Vivien P. Collinsville... 237
Gabriel, C. K. Discussion..... 219	Injuries to Spine Re Arthritis. Sumner L. Miller, Peoria 134	Stites, Hugh D. Aledo..... 237
Gall-Bladder Surgery, Safe. John B. Haeblerlin, Chicago 142	Instrument for Gas Insufflation in Tubal Patency Examination. Horry M. Jones, Chicago..... 150	Tegtmeier, Loraine E. Millstadt 323
Gamble, R. C. Discussion..... 209	Insulin Reactions. E. F. Traut, Chicago 468	Wanderer, Arthur E. A. Chicago 158
Garside, Arthur A. Paper..... 124		Mason, Frank. Discussion..... 35
Geiger, C. W. Paper..... 47		Mastoid Operation, Indications for. Irving Muskat, Chicago 53
Genito-Urinary Anomalies. Otis W. Britt, Waterloo, Ia. 108		Mastoiditis in Children. M. H. Cottle, Chicago 27
Gerber, Isaac. Discussion.....111, 196		Mayer, Leo L. Paper..... 223
Gifford, Sanford R. Paper...126, 315		Discussion 210
Glaucoma, Early Diagnosis of. C. W. Geiger and J. H. Roth, Kankakee 47		McMullen, Clarence J. Paper.... 396
		McNally, Wm. D. Paper..... 383
		Meckel's Diverticulum, Strangulation of. A. Neiman, Chicago.... 466

	Page
Medical Journal, Job of Editing a. Charles J. Whalen, Chicago.....	288
Medicine and the Eye. Leo L. Mayer, Chicago	223
Menace to Medicine from Economic Sins. (E)	414
Mental Hygiene of Adolescence. John W. H. Pollard, Evanston..	154
Meyer, S. J. Paper.....	210
Michell, George. Discussion.....	23
Miller, A. Merrill. Paper.....	300
Discussion	228
Miller, Charles H. Discussion.185,	299
Miller, Samuel L. Paper.....	134
Monroe, D. D. Discussion.....	402
Mora, J. M. Paper.....	338
Morwitz, S. M. Paper.....	213
Discussion	57
Murphy, E. S. Discussion.....	228
Muskat, Irving. Paper.....	53
Mycarditis, Treatment of Chronic. John C. Sutton, Chicago.....	112

N

Narat, J. K. Paper.....	461
Neiman, A. Paper	466
Nelson, C. S. Paper.....	67
Nephritis in Children. C. A. Aldrich, Winnetka, Ill.	439
Newborn, Observations on the. A. Newman, H. W. Paper	470
News Notes.....79, 158, 238, 323, 406	
H. Parmelee, Chicago	229
Norbury, Frank P. Discussion....	24
Nugent, O. B. Discussion.....	209, 212

O

Obesity and Leanness. Hugo R. Roney, Chicago	302
O'Byrne, C. C. Discussion.....	146
Ocular Muscle Imbalance. Harry M. Thometz, Chicago	344
Optic Neuritis, Etiology and Treatment. Meyer Wiener, St. Louis	219
Orvis, Howard A. Discussion....	185
Osseous Dystrophies. E. L. Jenkinson, Chicago	130
Ostrom, L. Discussion.....	29
Ourselves, On Being. W. D. Chapman, Silvis, Ill.	423

P

Pain, Abdominal in Children. John F. Carey, Joliet	202
Paralysis, General, Tryparsamide and Mercury Treatment. O. A. Kibler, Chicago	117
Paralysis, Nerve Anastomosis for Facial. Alfred Brown, Omaha, Neb.	130
Parmelee, A. H. Paper.....	229

	Page
Pediatrics, Medical and Surgical Co-operation in. Chas K. Stulik, Jr., Chicago	232
Pediatrics, Progress in. George Edwin Baxter, Chicago	97
Peptic Ulcer, Acute Perforation of. E. P. Coleman, Canton, Ill.	427
Pernicious Anemia and the Emotions. Howard Kenneth Scattiff, Chicago	394
Personals.....	78, 158, 237, 323, 405
Physicians Treat One-eighth Free. (E)	419
Pickett, William J. Paper.....	227
Pitkin's Spinal Anesthesia. A. Mer- rill Miller, Danville	300
Pollard, John W. H. Paper.....	154
Discussion	202
Pollock, Harry. Discussion.....	29, 57
Polypus, Solitary Choanal. S. M. Morwitz, Chicago	213
Post-Operative Wound Infections, Etiology. Guy S. Van Alstyne, Chicago	359
Pregnancy in Uterus Unicornis. John W. Birk, Chicago	30
Pulmonary Tuberculosis and Con- stitutional Anomalies. John Rit- ter, Miami, Fla.	352

R

Kawlings, I. D. Discussion.....	72, 190
Read, Charles F. Paper.....	21
Richardson, G. C. Paper.....	453
Ritch, C. Otis. Paper.....	357
Ritter, John. Paper.....	352
Rockefeller Foundation. A. R. E. Wyant, Chicago	381
Rolnick, Harry C. Paper.....	45
Rony, Hugo R. Paper.....	302
Rosenbaum, Harold A. Paper.....	375
Rosenbloom, Harold H. Paper....	114
Roth, J. H. Paper.....	47
Rudnik, D. F. Paper.....	430
Ryerson, Edwin W. Paper.....	234

S

St. Vincent's Hospital; Past and Future. Maurice L. Blatt, Chicago	24
Safety Pin Tongs for Fingers. E. B. Fowler, Chicago	438
Salinger, S. Discussion.....	57, 217
Sanitaria, Private, for Mental Patients in Illinois. John M. Grimes, Chicago	346
Sarcoma of Kidney. J. S. Grove, Chicago	432
Scatliff, Howard Kenneth. Paper.	394
Schlack, Otto C. Paper.....	280
Schultz, Louis. Paper.....	402
Schurmeier, Frederick C. Paper..	319
Sed, Linton. Discussion.....	365

	Page
Sims, George Kirby. Paper.....	372
Sinus Disease Re Retrobulbar Neuritis. Samuel H. Higgins, Milwaukee	340
Smallpox, C. S. Nelson, Spring- field	67
Smith, W. H. Discussion.....	74
Sneller, C. D. Discussion.....	58
Socialism a Failure in Medicine. (E)	417

SOCIETY PROCEEDINGS:

Adams County:	
Dec. 8, 1930.....	76
Alexander County:	
Dec. 16, 1930.....	76
Jan. 23, 1931.....	236
Chicago Roentgen Society:	
Dec. 10, 1930.....	77
Feb. 11, 1931.....	237
Mar. 11, 1931.....	322
Chicago Society of Industrial Medicine:	
Feb. 4, 1931.....	237
Mar. 4, 1931.....	322
Apr. 1, 1931.....	404
Society for Experimental Biology:	
Dec. 16, 1930.....	77
Chicago Medical Society:	
Dec. 17, 1930.....	77
Jan. 21, 1931.....	157
Feb. 18, 25, 1931.....	237
Mar. 18, 25, 1931.....	323
Apr. 15, 22, 1931.....	404
De Kalb County:	
Dec. 11, 1930.....	77
Kane County:	
Dec. 3, 1930.....	78
Feb., 1931.....	237
Lee County	404
Mercer County:	
Apr. 14, 1931.....	405
Sangamon County:	
Feb. 5, 1931.....	237
Sodium Amytal as an Anesthetic. Arthur E. Joslyn, Maywood....	320
Soiland, Albert. Paper.....	151
Spinal Anesthesia. Alvin M. Wino- grad and Harold R. Rosenbloom, Chicago	114
Splinting the Lung. Herman L. Horwitz and Otto C. Schlack, Chicago	280
Stites, R. O. Discussion.....	279
Stevenson, Walter. Discussion...	219
Stulik, Charles K., Jr. Paper....	232
Sullivan, Samuel J. Paper.....	45
Sulphur in Fever Treatment of Parcisis. Charles F. Read, Elgin, Ill.	21
Sutton, John C. Paper.....	112

VOLUME INDEX

vii

T	Page
Tetanus, Case of. L. Brannon, Joliet	476
Thometz, Harry M. Paper.....	344
Thyroid, Surgery of. Wilbur L. Bowen, Peoria	31
Thyroidectomy in Patients Over 50. J. M. Mora and E. I. Greene, Chicago	338
Tivnen, Richard J. Discussion...	52
Too Many Laws. (E).....	411
Traut, E. F. Paper.....	468
Trostler, I. S. Discussion.....	196
Tuberculosis in Infants and Children. N. S. Zeitlin, Chicago...	122
Tuberculosis, Surgery of Pulmonary. Ralph B. Bettman, Chicago	379
Tuberculosis Treatment by Thio-sulphate of Gold and Sodium. Leon Bernard, Paris, France....	119

U	Page
Undulant Fever. Lloyd Arnold, Chicago	276
V	
Van Alstyne, Guy S. Paper.....	359
Varicose Veins, Complications and Treatment. Leo M. Zimmerman, Chicago	60
Varicose Veins, Instrument. for Treatment of. Henry R. Kenny and J. M. Benedetto, Chicago...	378
Vincent's Angina and Stomatitis. Harold A. Rosenbaum, Chicago..	375
Viosterol in Pregnancy. G. C. Richardson, Chicago	453
Vonachen, John R. Discussion...	206
W	
Walter, O. M. Discussion.....	196
Warfield, C. H. Discussion.....	133

	Page
Wassermann Reaction in Asthma. Rudolph Hecht, Chicago. (E)...	366
Whalen, Charles J. Paper.....	285
White, Cleveland. Paper.....	45, 146
White, Edward William. Paper..	137
White, Paul A. Paper.....	124
Wiener, Meyer. Paper.....	219
Wilder, W. H. Discussion.....	51, 212
Williams, E. G. C. Paper.....	156
Williams, W. C. Discussion.....	72
Winograd, Alvin M. Paper.....	114
Woodruff, George. Discussion....	28
Woodruff, W. H. Discussion.....	52
Wyant, A. R. E. Paper.....	381
X	
X-Ray Examination of Appendix. J. T. Case, Chicago	191
Z	
Zeitlin, N. S. Paper.....	122

42

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CONTENTS

Editorials (For Titles See Extended Table of Contents) 1

ORIGINAL ARTICLES

Sulphur in Fever Treatment of Paresis. *Charles F. Read, M. D., Elgin, Ill.* 21

St. Vincent's Infant and Maternity Hospital. *Maurice L. Blatt, M. D., Chicago* 24

Atypical Mastoiditis in Children. *M. H. Cottle, M. D., Chicago* 27

Pregnancy in Uterus Unicornis. *John W. Birk, M. D., Chicago* 30

Surgery of the Thyroid. *Wilbur L. Bowen, M. D., Peoria, Ill.* 31

Principles of Amputation. *S. L. Governale, M. D., Chicago* 37

Diagnosis of Carcinoma from the Blood Serum. *Howard M. Jamieson, M. D., Chicago* 40

Gonorrheal Keratosis. *Samuel J. Sullivan, M. D., Harry C. Rolnick, M. D., Cleveland J. White, M. D., Chicago* 45

Early Diagnosis of Glaucoma. *C. W. Geiger, M. D., and J. H. Roth, M. D., Kankakee, Ill.* 47

Indications for the Simple Mastoid Operation. *Irving Muskat, M. D., Chicago* 53

Rectal Anesthesia with Tribromethylalcohol (Avertin) *Joseph R. Guttman, M. D., Chicago* 58

(Continued on Page 10)

EIGHTY-FIRST ANNUAL MEETING AT EAST ST. LOUIS, MAY 5, 6, 7, 1931

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Editorials

A HAPPY AND PROSPEROUS NEW YEAR

There is no doubt but that this will be a "Happy New Year" if only for the fact that it marks the passing of as perverse a twelvemonth—outside of actual war times—as this generation has known.

Business depression, following on the heels of business inflation, gave the country—in fact it is not amiss to say *all* countries—a downright good attack of financial chills and fever.

Financiers and economists blithely tell us that the best is yet to come and that the worst is over. Such information is excellent salve to ears that are rubbed raw with word from Washington that the income tax is in for an increase and that the president finds it necessary to ask for an increased budget to enforce bureaucratic measures that not one-tenth of one per cent of sane native born American citizenry feels down in its heart can ever be enforced.

However does this appalling development of taxation strike any fear into the heart of those misguided and benighted bureaucrats, who, seeing not quite so far as the ends of their noses, are already going briskly about putting more inhibitory laws, with their inevitable upkeep of more taxes upon the already overburdened shoulders of the American citizens?

To cite only one instance, the Sheppard-Towner Act in a new cloak and bonnet—now the Jones-Cooper Bill—is up for fresh consideration at the reconvening of Congress.

Similar tax inflicting bureaucratic measures tending to an overcentralizing of government are sending up sprouts in more than one council chamber of the socialists, the un-Americans and the bureaucrats.

Diligently refusing to bend an ear to the ground, and to grasp even the slightest vibratory echo of what public sentiment is, as evidenced by the November elections, the army of the Great Misguided continues in the pathway

of the lamentable Louis Seize of France. To be sure the seventeenth Louis of the Bourbon clan lost his head on the block of taxation. Socialistic taxation, and the results of the uninforced deluge of idiotic laws, aye, almost unenforceable, over which many optimistic fanatics have already lost their heads, may wind up by sweeping the whole bureaucratic crowd of demagogues into a worse chaos than France knew when Danton and Robespierre were at the helm and the revolution ran red. The United States as a democracy began its magnificent rule with a fight against a tax on tea. It will be a crime against the ages as well as against civilization if the foundering of the greatest experiment in self government the world has ever known is due to a fight against a gruelling tax for the enforcement of hundreds of idiotic laws.

Again let it be repeated, "That country is best governed which is least governed."

Under such a regime the United States rose gradually to world leadership. But to maintain that eminence a drastic crusade must be begun at once and without reservation against over-taxation for the support of hampering legislation that is desired only by a parasitical bureaucracy that fattens on the burdens of a well-meaning and industrious citizenry.

Of ancient Ireland it was said that every man was a king. Of modern America there are signs of a possibility of the ability to remark that every citizen is on the federal payroll. As all the money that Washington has comes out of the pockets of men and women living and working, all the way from Maine to California, even as you and I, the lay of the land is unmistakable. Either our democracy must degenerate into rampant socialism or a halt must be called.

The unemployment problem had as its solution a suggested "dole" such as the British Empire wishes itself well rid of. Fortunately this suggestion was kicked out of Congress!

To solve financial problems and get the world back into economic balance, does not call for any program that will create any more idlers or in any way facilitate idling. What is needed is to put idle men to work; and to lift the burden of taxation from men at work, especially that taxation involved by support of penal institutions crowded to overflowing by men and women put into durance through the workings, interpreta-

tions and ramifications of the innumerable and in far too many instances unnecessary legislation that is strangling the people of the United States.

"What," you ask, "has all this to do with a 'Happy New Year' for the medical profession?"

Just this. The medical profession has already been pulling chestnuts out of the fire for all sorts of freak legislation.

Great Britain and Germany have had more than a lapful of this catspaw legislation by the panel system of state medicine that has literally been a capsizing anchor to the practice of medicine and scientific advance in those respective lands. State medicine, the practice of medicine through corporations and endowed foundations, through pay and part pay clinics and through universities practicing medicine already menaces the profession in this country. "The hair of the dog cures the bite." These evils have come upon us and our country through the organized use of the ballot box. Organized use of the ballot box by members of the medical profession will prove one of the greatest all-American weapons ever employed to keep this country all-American and the practice of medicine, scientific, not socialistic, and ethical rather than commercial.

As was remarked in these columns a year ago, not until the profession at large arouses itself to the problem confronting civilization can there be any genuine happiness either for a day or a year or a decade to the man of medicine who takes his profession honestly.

There must be reform within the ranks as well as without. Some means must be devised where the profession itself is not pauperized through those well intentioned measures that tend to make the cost of caring for the sick, and the ailing, a matter within the reach of the purse-elasticity of the average citizen.

To be sure the present high cost of illness is not altogether a question singly of the physician's hire or the nurse's wage nor the food, shelter resources and protection afforded by hospitalization. Of these integral parts however it is undoubtedly true that the physician receives by far the smaller share in proportion to the skill and training involved. A large part of hospitalization expense comes from the untrained labor payroll. Some of our best hospitals complain that even at good wages it is difficult to find per-

sons to do the scullion tasks. For example, the preparation of fresh vegetables. Tedious and not altogether elegant to be sure is the washing of lettuce, the paring of potatoes, the scraping of carrots, parsnips or turnips, the slicing of cabbage, the shelling of peas—all of which are an item in hospital dietary.

Trivial as this detail may seem when compared to an hysterectomy, or an operation for brain tumor, yet it is a necessary lay service for convalescence. And there are others.

It is grateful to know that the A. M. A. is bending itself to seek a way for lowering both the cost of medical education and for a general economic cleaning up, and out of the present crisis in the care of the sick. To this end this magazine has been preaching for twenty years. When it does come it will not come a day too soon.

But with this brilliant prospect etched in promise on the sky it makes it all very easy for the editor of the ILLINOIS MEDICAL JOURNAL to sincerely wish to all of his colleagues a "Happy New Year."

HEALTH CONDITIONS IN ILLINOIS FOR THE YEAR 1930

For half a century Illinois has not enjoyed a year so healthful as 1930. The state department of health never did a larger volume of work in any other year. With these two statements Dr. Andy Hall, state health director, summarizes his annual report which embraces statistical evidence that shows the remarkable benefits which have come from the practical application of preventive medicine in this state.

The general death rate, he points out, will fall below 11 per 1,000 for 1930, the lowest in fifty years, if provisional statistics hold good in the final analysis. New minimum death rates from tuberculosis and among infants are practically assured on the basis of records already compiled. These and other illuminating facts give the greatest encouragement to prospects for future welfare of the people of Illinois.

"The research work of the department yielded two definite and important new contributions to scientific knowledge. One was the development of a new method of pasteurizing milk which enables housewives to easily, quickly and economic-

ally pasteurize small quantities of milk for family use. Another demonstrated that live, clean, human skin has a high germicidal power, killing dangerous disease germs rapidly in large quantity. Still another study showed that temperature is an important factor in bringing on an attack of typhoid fever.

"The outlook for 1931 is that measles will be epidemic generally during the first four months and fear is entertained that a sharp wave of infantile paralysis will follow during the late summer and fall. To combat these possibilities arrangements have already been completed for collecting convalescent serum to distribute to physicians for treating infantile paralysis. This procedure prevents the development of paralysis in a large number of cases when given early enough.

"Plans are under way for collecting convalescent serum with which to combat measles in children under three years old. Measles is dangerous to these young children but it can be postponed or modified by the judicious and timely use of convalescent blood serum.

"Illinois had the disgraceful record of reporting more smallpox than any but two other states in the Union, Indiana and Ohio, during 1930, and it is to establish a more prideful reputation that an attack on that disease is planned."

POST-GRADUATE WORK IN CHICAGO

When one impartially surveys the field, there is at present no opportunity for real post-graduate study in Chicago. Sporadic and well intended efforts have been made, but there is nothing worthy of Chicago as a great medical center. Why?

There appear to be three fundamental reasons: First, the logical centers for such teaching are the great charity hospitals. Cook County Hospital, with its three thousands beds, unfortunately offers nothing in the way of organized clinical teaching. The Illinois Eye and Ear Infirmary, once a bright spot in the field of teaching the specialties, likewise offers nothing commensurate with its possibilities. Thus these two great centers are of little use to the practitioner who comes to Chicago seeking post-graduate opportunities.

Secondly, post-graduate teachings, if properly done, is expensive. This expense must either be

borne by the practitioner who receives the instruction, it must be endowed, or it must be borne by the State. If done by the State, it must come through the State Medical School. That means an increased budget. If endowed, it might be done through the other medical colleges—but they have no such endowment at present. That puts the burden on the ultimate consumer, the man who takes the course. It has always been so and we hope it always will. There is nothing finer in the whole story of medicine than the sacrifice of time and money which members of the profession have always been willing to make to further their knowledge—knowledge that would make them more useful to the community.

Thirdly, post-graduate teaching must be done by clinicians who like to teach and who have experience in teaching. Chicago at present has no opportunity to train or select post-graduate teachers, let alone remunerate them.

And so men still spend their hard earned money to go to Austria, Germany or France where post-graduate teaching is organized. We have the material at home, we have competent men but we have no organization. The practitioner of the State has a right to ask: What's the matter with Chicago?

CAN EVOLUTION OF PLAN FOR INSTALLMENT PAYMENT OF BILLS FOR CARE OF ILLNESS RELIEVE ECONOMIC PRESSURE ON PHYSICIAN AND PATIENT?

IDEAS OF THIS NATURE SHOULD BE SCRUTINIZED CAREFULLY

As "installment buying," or "installment paying" rather, took its share of blame for the deflation and depression that have been the year's bogies, it is interesting to note the advancing in all seriousness of an installment plan procedure for the payment of medical service.

At first sight the plan may seem optimistic. At further study it opens up perplexities galore.

Was the scheme of installment buying successful in the world of commerce?

If so, why did this nationally used lever for "speeding up" stand accused later of being the

causation for the "oversold" condition of the country that many economists claim has been a large factor in contributing to the business debacle?

If installment systems failed to keep the hard-headed business man from literally "getting in over his neck," in what way will it react upon the ever soft-hearted, continuously imposed upon members of the medical profession?

Some serious, well-read, deeply versed members of the profession insist that appearances indicate that cost of illness may have to be met on the installment plan, as is done with many commodities and necessities.

While hospitalization and nursing costs are the larger portion of expense to be considered in present day care of the sick, and the surgeon's or physician's fee is a comparatively minor item, yet the entire amount often reaches heights where payment in a lump sum is absolutely prohibitive for the man of average income. What of this plan to let him pay it in dribblets?

There may be wisdom in the suggestion that the expense of illness shall be paid for on the installment plan. Wage-earners have discovered how many necessities, and even luxuries, can be provided for themselves and their families by a wise use of the extended, secured credit known as installment buying. The system is not free from abuses. Yet many a home has been bought and furnished and made into a prosperous community unit by sane and conservative use of this commercial system. Also, many a family has gone bankrupt from the same cause.

A judicious application of the installment system might both relieve the patient and benefit the physician. For as a matter of fact in these post-war days of upset finance in thousands of instances doctors' bills and allied charges for the care of illness have become more and more an indefinite liability with households and individuals. An idea seems to maintain that such care should be dispensed as from a miraculous fount. To some extent, responsible for this situation, are the misguided philanthropies of clinics permitting free or part pay services to men and women "owning" automobiles, and paying for them on the installment plan; expensive radios, and other desirable yet not altogether essential complements of civilization.

The fault cannot all be laid there. It is traditional that the last bill to be paid by the great majority of citizens is the bill of the doctor. Hospitals fare better. The nurse delivers a service that is practically on a cash basis. The doctor answers an emergency call and usually gets a deferred payment response.

Look into this matter of lump sum payments for hospitals: A nurse gets at least seven dollars per 8-hour day from the patient with an additional charge of ten dollars per week for her board and keep. If the patient must have constant care with the union labor demands of an 8-hour shift the patient is liable for the sum of approximately \$200 in a week's illness. Naturally this cannot be cared for in a lump sum by any except the wealthiest. As a result either the patient goes home too soon, or may die or become a semi-incapacitated citizen, or the bill doesn't get paid.

For such situations the payment of bills for illness on an installment basis may promise much. Again the remedy may be worse than the cure.

In many instances the installment plan is a simple way of getting out of a man what he owes you without his realizing that he is paying his just debts or feeling injured or unduly curtailed in his pocketbook. Such a species of gentle hypnosis is necessary with some persons, who seem to feel that because medicine is a profession bearing in its train, what seems to a sufferer, almost divine skill, that the exponents of such skill can live without mortal sustenance.

Budgeting of expenses has been found more or less feasible in practically every angle of life. If a man knows he has to have an operation that will cost him \$200 and that he can pay down only \$50, but can care for the rest in ten or twelve payments, he may not be so apt to defer until the danger point the performance of the operation; a life may be saved and the surgeon assured of at least a part of his earnings; without which no man can live or support his dependents.

Here is another side of the question. Installment credit is not allowed in the business world unless a man's credit rating is established. The doctor never stops to look up a credit rating. He sets out to save the patient. When the patient is saved it would seem there might be some sort

of system by which if the bill can not be paid immediately it can be arranged to be met on the installment plan. What applies to emergency service could be made to fit chronics, who are often the worst pay of all as well as the most troublesome of patients.

The principle of secured installment buying of course rests first upon a credit rating or paying capacity which is supposed to be satisfactory to the dealer in commercial commodities. A price is then quoted to the purchaser that will cover the carrying charge for the account.

On a radio or automobile or what not that is quoted at \$700 the purchaser may pay \$125 down. He will sign ten or a dozen notes in equal or graded payments for the balance. These notes are payable at weekly or monthly intervals and include a reasonable interest charge. The seller indorses these notes and thus becomes liable in taking the notes to institutions known as "acceptance companies" and which are an outgrowth of installment financing. These acceptance companies turn over to the seller for these notes an immediate payment of their face value minus ten or fifteen per cent discount. This discount of course has been cared for in the price.

There is no call for any doctor to rush into the installment sale of his services with wild abandon. As a matter of fact the acceptance companies have not all turned out to be of the highest integrity. And the dignity of the profession must be upheld in the cause of ethics and honesty. Possibly, however, some practical application of the principle of installment payments might be evolved for the profession through the profession and its sound financial connections. Problem of payment for services rendered was never so pressing, either to the patient or to the physician. It would appear that such relief as has been at hand for business men may be available in some form for the medical profession if each practitioner could be held to a figure of solvency in the total amount of notes which he "secured" to the necessary loan company.

Physicians who have made individual experiments in this field with local patients and banks are in position to fully understand the recent epidemic of bankruptcy petitions among installment plan automobile retailers who sold unwisely and too well.

DR. EDWARD H. OCHSNER'S FORMULA FOR SOCIAL AND ECONOMIC JUSTICE

The following excerpt is reproduced from *Clinical Medicine & Surgery*, July, 1930:

To those capitalists and philanthropists who are constantly meddling with medical affairs, too often to the detriment of both the medical profession and the general public, I would make the following suggestions:

First, that they devise means and methods of preventing periodic financial depression, and thus solve the problem of unemployment which, to the average wage earner, is a more serious problem than even the danger of sickness. The medical profession has conquered all the major epidemics, such as cholera, typhus, typhoid fever, smallpox, yellow fever and malaria. The control of financial depression is, I believe, no more difficult than the control of epidemics and would add nearly as much to the sum total of human happiness as the control of epidemics.

Second, let the capitalists devise means and methods whereby all wage earners may labor under good hygienic working conditions, during reasonable hours, and receive a living wage.

Third, let them join with other groups to abolish or, at least, to greatly reduce human parasitism, the corroding canker of modern civilization, by devising means and methods whereby remuneration and reward shall be in direct proportion to the time and energy legitimately expended and to the value of services rendered to society in general. If these three problems were seriously tackled they would challenge the best brains of all America and would easily keep the philanthropists, capitalists and industrialists so busy for the next thousand years or more that they would not find a moment's time in which to meddle with the private practice of medicine.

To the medical profession I would suggest keeping up the fight against bureaucratic and lay control unremittingly, by educating all members of the medical profession, as well as the laity, to its dangers.

All citizens are vitally concerned in maintaining the independence of the medical profession and all will suffer grievously if medicine is hampered and if medical men generally are to become the hirelings of bureaucrats or of lay corporations.

MEDICAL ETHICS AND THE LAITY

Destructive criticism of all things medical by a certain biased and prejudiced proportion of the laity has become all too common, too frequent and too ridiculous.

Anybody can criticize. Oftenest the most destructive criticism comes from the most ignorant. This would seem to be true of the ethics of the medical profession when held up as a target for any disgruntled or idle citizen by somebody equally idle or ignorant.

It is unfortunate that a magazine of the calibre, circulation and backing of *Liberty* should have permitted to be printed in its pages so basically unsound an article as that captioned "Doctors and Their Ethics." It was clearly a statement of opinion, and not of fact and far from being a statement of opinion as founded on fact.

Though the educated mind could see easily after perusing the article that its fallacies were double barrelled in every respect yet the most terrible menace in it lay not in its inaccuracies and misrepresentations but in the false conclusions that must be drawn from it by lesser minds.

The average citizen reading this article would be led to believe that he had suddenly seen into the very intricacies of the workings of the medical profession just as a century or so ago it was the practice to study the workings of the human stomach through the unhealed wound of Alexis St. Martin.

Perhaps the wisest way to treat such nonsense as is this article is to swat it with satire and to bleed it with contempt.

For the benefit of its author, Dr. G. Howard Gowen has composed and printed a satirical revision of the Oath of Hippocrates.

We put it—this satirical revised oath of Dr. Gowen—in this form, not for the purpose of ridiculing or defiling this sacred oath but rather for the purpose of so phrasing it that it might possibly be acceptable to the writer of that article mentioned in *Liberty*. And bearing this in mind, we submit the revised oath:

THE MODERN OATH OF HIPPOCRATES

I swear by the gods and goddesses of Mollah, Hokum, and a couple of others, that I will practice medicine, not as I have been taught, but as the public would have me practice; that I will send bills only once a year and for small

amounts, and if paying these bills interferes with the purchase of such essentials as an automobile, radio, piano, or fur coat, I will not require payment; that I will affiliate with some large clinic and utilize my time and endeavors for the free care of patients even though they could easily pay for medical attention; that I will get up at all hours of the night, however unnecessary it may be; that I will not attempt to force my patients to do what I think best, but will treat them the way their neighbors suggest; that I will always tell the patient what his ailment is, and particularly, in the case of social disease, with untiring effort, I will notify wife or husband, children, father, and mother, and all other relatives and neighbors; that in cases requiring immediate surgical attention I will not force the issue, but will let my patient wait as long as he cares to and if he dies, I will take the blame; I will sell my car and home, do away with expensive office furniture, discontinue buying medical books and literature, and in every way cut down my expenses so that I can live, however uncomfortably, without charging my patients anything but minimal sums; and that, furthermore, I will take no vacations or indulge in any form of amusement in order that I may be at all times at the call of my patients; and finally, with all of the above means to help me, should I not be able to make a living, I will not press my patients for aid, but will secure a position as bellboy or street cleaner where my education will be of decided advantage in promulgating rapid progress towards the acme of existence. —G. HOWARD GOWEN, M. D., Junior Dean, *The Chicago Medical School News*, April, 1930.

ILLINOIS STATE MEDICAL SOCIETY HAS REPUTATION OF BEING AN AUTHORITY ON SOCIALIZED MEDICINE

College debating teams are being referred to the Illinois State Medical Society for authentic information on Socialized Medicine; during the past six weeks the Educational Committee has supplied package libraries to debaters in seven colleges. Reports indicate the opposing sides are winning and a Michigan physician writes that in his city the debaters "knocked State medicine into a cocked hat.

Colleges requesting help are Monmouth College, Macomb Normal, Bradley College, Shurtleff College, all of Illinois; Northern Michigan State Normal, Marquette, Michigan; University of Toledo, Toledo, Ohio; Purdue University, Lafayette, Indiana.

CAN A CORPORATION PRACTICE MEDICINE? THE APPELLATE DIVISION OF THE SUPREME COURT OF NEW YORK RULES NOT

In the December issue of the *JOURNAL* we published the decision of Judge Samuel R. Blake of the Supreme Court of Los Angeles, who held that a corporation in California cannot practice medicine. In response to several inquiries we are republishing the decision of the Appellate Division of the Supreme Court of New York. In the case of *The People of the State of New York vs. John H. Woodbury, Dermatological Institute*, 192, N. Y. 454 decided September 29, 1908. We quote:

The John H. Woodbury Dermatological Institute was convicted of unlawfully advertising to practice medicine and a fine of one hundred dollars imposed by the Court of Special Sessions of the first division of the city of New York, January 2, 1908. From that conviction there was an appeal to the Appellate Division of the Supreme Court of New York, which affirmed that conviction in quite a long opinion, which is published in 124 App. Div. Reports, Supreme Court of New York, 877.

The upper or highest court in New York is their Court of Appeals and there was an appeal taken to that court by the defendant. The judgment of conviction was affirmed and the opinion is in 192 N. Y. 454.

The following is the decision in full:

THE PEOPLE OF THE STATE OF NEW YORK,
RESPONDENT, VS. JOHN H. WOODBURY
DERMATOLOGICAL INSTITUTE, AP-
PELLANT, 192 N. Y. 454, DECIDED
SEPTEMBER 29, 1908

WILLARD BARTLETT, J. The statute now in force which regulates the practice of medicine in this state provides that "any person not a registered physician who shall advertise to practice medicine, shall be guilty of a misdemeanor." (Laws of 1907, chap. 344, § 15.)

The district attorney of the county of New York laid an information before the Court of Special Sessions accusing the defendant of the crime of unlawfully advertising to practice medicine in violation of this prohibition. The defendant was convicted upon proof sufficient to establish the fact that it had so advertised. It was contended before the trial court, however, and it is

contended here, that a corporation is not chargeable with liability under the statute because the word "a person," as used therein, cannot properly be held to apply to a corporation at all, but is exclusively applicable to an individual human being. The prosecution answered this proposition by reference to the Statutory Construction Law (Laws of 1892, chap. 677, sec. 5) which provides that the term person includes a corporation and joint stock association." The defendant replied that the provision quoted from section 5 of the Statutory Construction Law is qualified by the limitation contained in section 1 of the same act, which declares that the chapter is "applicable to every statute unless its general object, or the context of the language construed, or other provisions of law indicate that a different meaning or application was intended from that required to be given by this chapter." The argument of the defendant is that the context in the general act of 1907 regulating the practice of medicine which contains the prohibition against advertising to practice medicine by any person not a registered physician indicates conclusively that "any person" therein mentioned could not possibly have been intended to mean "any corporation." The Court of Special Sessions, however, and the Appellate Division (with one dissenting judge) reached a contrary conclusion, holding that *artificial persons as well as natural persons fell within the prohibition of the statute*. Mr. Justice Ingraham, who wrote one of the opinions for the majority of the Appellate Division, called attention to the fact that the provision in the Statutory Construction Law to the effect that the term person includes a corporation, was taken from section 718 of the Penal Code and section 953 of the Code of Criminal Procedure which were repealed by section 37 of the Statutory Construction Law itself. This substitution and repeal seemed to him clearly indicative of the intention of the legislature to make the provision of the Statutory Construction Law applicable to all cases in which a corporation had committed an act which by law was made a criminal offense if committed by a natural person.

The only difficulty involved in the adoption of this view grows out of the existence of hospitals, dispensaries and similar corporate institutions which are unquestionably authorized by law to practice medicine—although of course only through the agency of natural persons who are duly registered as physicians. The defendant was incorporated under the act of Feb. 17, 1848 (L. 1848, ch. 40), to authorize the formation of corporations for manufacturing, mining, mechanical or chemical purposes, and the objects for which it was formed were stated in the certificate of incorporation as follows: "The carrying on of business of manufacturing chemical preparations and printing, publishing and selling books and pamphlets relating to the same and advertising same." There could be no suggestion or pretense that this was a hospital corporation or dispensary. In reference, however, to hospitals and dispensaries it could hardly have been the intention of the legislature in the act of 1907 to prohibit such corporations from advertising to do what they might do lawfully—that is to say, from advertising to practice medicine;

yet it is argued that if we hold that the act of 1907 makes it a misdemeanor for any corporation (making the term "person" embrace a corporation) to advertise to practice medicine, we must also hold that incorporated hospitals and dispensaries fall within the prohibition. If this were the necessary result of the construction adopted in the courts below I think it would furnish a strong reason for rejecting that construction. It seems to me, however, that we can affirm this judgment without in any wise denying the lawful right of hospitals, dispensaries and similar corporate institutions to advertise their readiness to exercise their lawful functions; and this simply for the reason that the general medical law of 1907, is obviously not intended to apply to the case of such corporations at all. In other words, the prohibition therein contained against the practice of medicine without lawful registration in this state or in violation of any of the provisions of the statute or against advertising by any person not a registered physician were not intended to apply and plainly could not reasonably be held to apply to corporate bodies which by the express provisions of other statutes are authorized to carry on the practice of medicine upon compliance with their provisions and without registration.

The incorporation of hospitals is provided for in section 80 of the Membership Corporations Law (L. 1895, ch. 559, as amended by L. 1900, ch. 404). Five or more persons may become a corporation for the purpose of erecting, establishing or maintaining "a hospital, infirmary, dispensary, or home for invalids, aged, or indigent persons," by making the prescribed certificate and obtaining the written approval of the state board of charities and a justice of the Supreme Court of the district in which the principal office or place of business of the corporation is to be located. The statute expressly provides that "the systems of medical practice or treatment to be used or applied in such hospitals, infirmary, dispensary or home" may be specified in the certificate. Thus, a hospital duly incorporated under the Membership Corporation Law unquestionably holds itself out as being able to diagnose, treat, operate and prescribe for human disease, pain, injury, deformity or physical condition; and such corporations do in fact offer and undertake publicly and frequently through the agency of advertisements to diagnose, treat, operate and prescribe for such diseases. An institution of this character, possessing legislative authority to practice medicine by means of its staff of registered physicians and surgeons, comes under the direct sanction of the law in so doing, and by the plainest implication under well-settled rules of statutory construction relating to enactments dealing with the same general subject matter are expected from the operation of the act of 1907 under which the defendant was convicted.

It is suggested in behalf of the appellant that to attribute to the legislature a design to prohibit a corporation which is not registered as a physician from advertising to practice medicine is to charge the lawmakers with doing an absurd act, inasmuch as it is impossible under the law for a corporation to register as a physician. There is nothing in this point. It might just as

well be urged that there is no need of a law prohibiting a minor from voting since everybody knows that a minor has no legal right to vote. This fact does not prevent illegal attempts on the part of minors to exercise the right of suffrage, and the facts in the present case show that a corporation may undertake to practice medicine without authority of law.

Believing, as I do, that the construction of section 15 of chapter 344 of the Laws of 1907 adopted by the courts below may be sustained without affecting the rights of incorporated hospitals or dispensaries, I think the judgment of conviction was correct and should be affirmed.

CULLEN, Ch. J., GRAY, HAIGHT, WERNER, HISCOCK and CHASE, JJ., concur.

Judgment of conviction affirmed.

Other state courts have held that a corporation cannot practice medicine or dentistry, for instance:

In the State of California it was very recently decided that a corporation cannot practice medicine (*People of the State of California vs. The Medical Service Corporation*) published in full in the December issue of the JOURNAL.

People ex rel Lederman v. Warden of City Prison, 152 N. Y. Supp. 977; *Godfrey v. Medical Society of New York County*, 164 N. Y. Supp. 846.

The Supreme Court of *Colorado* has held, too, that a corporation cannot practice dentistry (*People v. Painless Parker Dentists*, 275 P. 938).

To the same effect, in so far as relates to dentistry, is the *Kansas* case (*Winslow v. State Board of Dental Examiners*, 223 P. 308).

A similar holding is to be found in *Pennsylvania* (Com. ex. rel. Attorney General v. Alba Dentist Co., 13 Pa. D. R. 432).

The Illinois law forbids the practice of medicine by "any person," unless that person has a special license to so do. A corporation is "a person." A corporation cannot pass the medical examining board. The right to practice medicine attaches to the individual and dies with him. If our interpretation of the Illinois law is correct then the Illinois Medical Practice Act forbids the practice of medicine by a corporation. Perhaps we have in our present Illinois legal restrictions sufficient authority to prevent the encroachment on the medical profession by corporations attempting to engage in the practice of medicine.

Note and Comment:

In Illinois, in 1923, 1925, 1927 and 1929 at each session of the legislature, we introduced bills to prohibit the practice of medicine by corporations in this State. At each attempt we were beaten because of the influence brought to bear by a certain corporation that has been engaged for several years in the practice of medicine in the State:

In Illinois there is a statute which prohibits corporations from practicing law, yet the law-makers of the State seemed unwilling to give to the medical profession similar protection granted the legal fraternity.

LAWYERS AGAIN PROTEST THE PRACTICE OF LAW BY CORPORATIONS AND TRUST COMPANIES

The *Delaware State Medical Journal*, December, calls attention to an article that appeared in the *Baltimore Sun* of December 3, 1930, as follows:

Practice at law by trust companies and corporate fiduciaries was assailed by Charles Lee Merriken, incoming president of the Baltimore Bar Association, at the annual meeting in the Lord Baltimore Hotel last night.

The practice also was criticized by Edward J. Colgan, Jr., retiring president, who in his annual report stated that "generally speaking the whole complaint can be characterized as the unlawful practice of law by these companies."

Mr. Merriken said the organization should "curb" the pernicious activity of trust companies which are seeking to take from us business which rightfully belongs to us as lawyers."

Solicitation, sometimes house-to-house, and advertisements in which there has been a general invitation to the public to have wills drawn, and efforts to have people draw up deeds of trust under which property would be conveyed to a certain trust company to hold in trust for beneficiaries, were named by Mr. Merriken as certain points of contention.

The practice is the subject of an investigation by a committee of the association headed by Edgar Allen Poe.

"The legitimate exercise of their chartered powers by these companies has always been recognized by the members of the bar as legal and in many cases desirable," Mr. Colgan said in his report.

"At the same time justifiable complaint has been made of the manner in which some of these companies have solicited business and executed it after it has come to them.

"It cannot be justly said that the complaint of the lawyers has been entirely based on selfish motives because it is not only recognized but

conceded that these corporations through their officers or paid attorneys frequently are called upon to represent persons whose interests necessarily conflict and are at variance with their own."

With the exception of one or two points, Mr. Colgan said, the committee, appointed in 1929, has made progress. It is hoped, he added, that representatives of the fiduciaries will agree to the propositions which the special committee has submitted to them.

The November issue of the same journal called attention to an exactly similar complaint or protest from the Philadelphia lawyers against what they charged was usurpation of their professional prerogatives, chiefly by corporations.

THE ATTORNEY GENERAL OF ILLINOIS HOLDS THAT PUBLIC HOSPITALS IN ILLINOIS CANNOT EXCLUDE ANY DOCTOR LICENSED BY THE STATE

According to the associated press reports December 29, the drugless practitioners cannot be barred from hospitals. The following is the ruling:

Public hospitals in Illinois cannot exclude any doctor, licensed by the state, whether they are regular doctors of medicine or graduates of schools teaching drugless healing, Attorney General Oscar E. Carlstrom has advised Dr. Any Hall, director of the state department of public health.

Exclusion of osteopaths and other drugless doctors from a hospital at Decatur started a controversy which was carried to Dr. Hall and the attorney general for settlement. Directors of the hospital excluded the drugless doctors by fixing a standard of qualifications which they were unable to meet, Attorney General Carlstrom was informed.

"All physicians who are recognized as legal practitioners by the state board of health shall have equal privileges in treating patients in public hospitals," the attorney general said, pointing to the state statutes.

"Legal practitioners," he added, "included all persons who have been licensed to practice medicine, either in all its branches or to treat human ailments without the use of drugs or medicine and without operative surgery. The board

of directors of a hospital would have no authority, under the statute, to pass any rules or regulations preventing all legal practitioners from having equal privileges and treating patients in such hospitals.

"The department of registration and education has the power and authority to determine and fix a standard of qualification for those practicing medicine and such power is not delegated to public hospitals."

AN APPRECIATION OF THE OLD FAMILY DOCTOR

An editorial in the December 29, Chicago Herold-Examiner is worthy of reproduction. We quote:

TRUE TO AN OLD IDEAL

"Modern clinical groups, that usher a patient down the line through a group of specialists, make quite an impression upon the unhappy patient.

"The system is based upon the efficiency idea—a sort of Ford plant arrangement for reconditioning defective parts in the human machinery. These specialists are often fine mechanics, but the old-fashioned family doctor was often an artist and a hero by comparison.

"And these old-fashioned doctors still carry on, as evidenced by dispatches from McCall, Idaho, a few days ago. Word reached McCall that a mountaineer was near death and needed a physician at Squaw Meadows, fifty miles away. Dr. Don S. Numbers trekked through a blizzard, on snowshoes. Once he became lost. Finally he reached the cabin, built a fire, warmed his hands and performed an operation and then remained alone at the worker's bedside to act as nurse.

"Men who respond so truly and humbly to a high ideal should be canonized by their professional brothers."

THE EDUCATIONAL COMMITTEE OF THE ILLINOIS STATE MEDICAL SOCIETY HAS GONE FAR AND ACCOMPLISHED MUCH DURING 1930

The services rendered by the educational committee is about relatively equally divided between Cook County and down State. The following summary is of interest:

SPEAKERS BUREAU

525 speaking appointments before lay groups.

Cook County

180—Cook County lay organizations requested speakers from the Educational Committee.

20—Downstate appointments filled by Chicago physicians. These included:

Peoria University Club.

Paris Woman's Club.

Danville Public meeting sponsored by Vermilion County Medical Society and Auxiliary.

Springfield Woman's Club.

Rock Island Parent Teacher Association.

Joliet Chamber of Commerce.

Evanston Woman's Club.

Joliet High School—4,000 students.

Evanston Chamber of Commerce.

Evanston Rotary and Lions Clubs.

Lake Forest Woman's Club—2 meetings.

Joliet Rotary and Lions Clubs.

Annual Meeting of the Northeastern Division of Illinois State Teachers Association, including Cook County, with an attendance of over 2,000 teachers.

District meetings of Illinois Federation of Women's Clubs, attended by representative officers of women's clubs of Cook County.

20,000—Students in high schools, junior colleges, parochial schools, and grade schools heard health talks presented by members of the Chicago Medical Society.

Downstate Counties

345—Downstate lay organizations requested speakers from Educational Committee. These requests came from

Illinois Biology Teachers Association.

Women's Clubs.

Parent Teachers Associations.

Home Bureau, Household Science, 4H Clubs.

Farmers Institutes.

Teachers Institutes—County and District.

University Clubs.

Young Mothers Clubs.

Men's Service Clubs, Kiwanis, Rotary, Lions, Optimist, etc.

Churches.

Y. M. C. A. and Y. W. C. A.

Business Women's groups.

University Fraternities.

25,000—College, High school, grammar school students heard health talks given by physicians from downstate.

Number of speakers scheduled by Educational Committee in the 102 counties of Illinois:

Adams	2	Champaign	3
Alexander	3	Christian	2
Bond	1	Clark	4
Boone	2	Clay	2
Brown	1	Clinton	1
Bureau	5	Coles	5
Calhoun	1	Cook	180
Carroll	4	Crawford	4
Cass	2	Cumberland	5

DeKalb	7	Kankakee	2
DeWitt	5	Kendall	1
Douglas	3	Knox	1
DuPage	10	Lake	15
Edgar	5	LaSalle	6
Edwards	1	Lawrence	1
Effingham	3	Lee	1
Fayette	1	Livingston	3
Ford	4	Logan	1
Franklin	3	McDonough	3
Fulton	2	McHenry	6
Gallatin	1	McLean	6
Greene	5	Macoupin	5
Grundy	1	Madison	10
Hamilton	1	Marion	10
Hancock	4	Marshall	1
Hardin	1	Mason	3
Peoria	4	Massac	1
Perry	4	Menard	2
Piatt	4	Mercer	1
Pike	3	Monroe	1
Pope	1	Montgomery	4
Pulaski	1	Morgan	2
Putnam	1	Moultrie	2
Randolph	1	Ogle	3
Richland	1	Shelby	3
Rock Island	6	Stark	1
St. Clair	12	Stephenson	1
Saline	1	Tazewell	7
Sangamon	9	Union	12
Schuyler	1	Vermilion	12
Scott	1	Wabash	1
Henderson	4	Warren	8
Henry	1	Washington	2
Iroquois	3	Wayne	1
Jackson	3	White	2
Jasper	2	Whiteside	20
Jefferson	1	Will	10
Jersey	1	Williamson	5
Jo Daviess	9	Winnebago	3
Johnson	1	Woodford	2
Kane	6		

RADIO

317—CHICAGO PHYSICIANS have been privileged to speak over the radio through the Educational Committee.

Manager of Station WJJD tells Committee he will gladly give time for occasional talks by physicians from downstate who may be in Chicago and who would be willing to present talks approved by the Committee.

Letters requesting copies of these talks have been received from all parts of the United States.

The Educational Committee has sponsored weekly health talks from WGN for four years without a single failure to fill each assignment.

Not one cent has been paid for the use of the radio.

The Young Mother's Hour, sponsored by the Chicago Pediatric Society and the Educational Committee has received favorable comment from President Hoover and others.

SCIENTIFIC MEETINGS

80—SCIENTIFIC PROGRAMS arranged for Medical Societies.

70—Programs given by Chicago physicians.

10—Presented by physicians from downstate.

150—Chicago physicians listed as willing to present scientific papers before medical societies.

115—Downstate physicians on this Scientific list.

SUMMER CLINICS OF CHICAGO MEDICAL SOCIETY

616—Newspaper announcements released to Illinois editors about the Summer Clinics.

PRESS SERVICE

11,472—Releases to newspapers of Illinois, Iowa, Missouri, Kentucky and Indiana.

5,120—Represent regular health education service including the health column published over the signature of the local medical society in about 100 newspapers. 18 COMMUNITY NEWSPAPERS of Cook County carry this column over the signature of the Branch Societies of Chicago Medical Society.

1,165—Releases about Health Week as proclaimed by Governor Emmerson.

1,942—Releases for County Medical Societies covering meetings, immunization campaigns, epidemics, etc.

216—Adams	231—Madison
36—Alexander	163—Rock Island
83—Christian	177—Sangamon
63—Coles Cumberland	44—St. Clair
15—DeKalb	321—Vermilion
39—Franklin	59—Warren
7—Henry	53—White
91—Iroquois	61—Whiteside
40—Kankakee	76—Will Grundy
69—LaSalle	17—Winnebago
71—Cook (re Burial permits)	10—Jersey

943—Releases for City medical organizations and miscellaneous city organizations.

2—Decatur, re epidemic

10—Peoria Medical Society

16—Pekin Woman's Club

8—Rockford Physicians Club

29—Chicago Medical Woman's Club

616—Chicago Medical Society Summer Clinics

20—Chicago Association of Commerce, re Chicago Medical Society meetings

242—Chicago community papers, re Branch meetings

298—Releases for District Medical Organizations.

99—Tri-County Medical Society

110—Southern Illinois Medical Association

89—9th and 10th Councilor District Meeting

2,004—Releases, miscellaneous.

666—Annual meeting Illinois State Medical Society

666—Young Mothers' Hour from WJJD

607—Sheppard-Towner and Jones Cooper Legislation

65—Correction of defects in pre-school child

108—HEALTH EDUCATION ARTICLES written and approved.

CONTACTS WITH LAY GROUPS

Cook County

The Civic Federation of Chicago—A large and influential group of business men organized for the purpose of furnishing economical protection of the public in taxation and other state and governmental affairs.

Chicago Y. M. C. A.—Letter sent to all Y. M. C. A. executive secretaries regarding posting of signs belonging to Public Health Institute. Replies and telephone calls indicate that signs have been removed or not put up.

Chicago Kiwanis Club—promotion of Boys' Week.

Woman's Trade Union League—Cancer education program.

Chicago Commons.

American Association of University Women—Through the Educational Committee a contact was made with a branch of the Association which definitely caused this group to reverse their action favoring Sheppard-Towner type of legislation.

Chicago Council of Jewish Women.

Chicago Woman's Aid.

Chicago Woman's Club—many hours spent with them in conference relative to cancer education program.

Boy Scouts.

Teachers Association—promotion of American Education Week.

Churches—physicians speaking from pulpits and before men's and women's organizations in churches.

Federation of Cook County Women's Organizations.

Illinois Society for the Prevention of Blindness.

Chicago Heart Association.

Illinois Tuberculosis Association.

Elks Committee for Crippled Children.

Woman's City Club.

Rotary, Kiwanis, Lions, Optimist and other men's clubs.

Parent Teacher Associations.

County Nursing Staff of Cook County.

Chicago Dental Society.

Chicago Health Department—Educational Committee gave publicity to the diphtheria immunization campaign sponsored by Chicago Medical Society and City Health Department. Radio talks were given, talks on diphtheria scheduled, educational articles released to all newspapers in Cook County.

Articles prepared for Chicago's Health, Bulletin of the City Health Department.

Speakers suggested for Health Show last spring.

Medical Woman's Club.

Institute for Juvenile Research.

Medical Schools of Chicago.

Woman's Auxiliary to the Chicago Medical Society—Educational Committee has been responsible for practically all program material of the Auxiliary and for sending out literature prepared for the Auxiliary.

Nursing Service of the Chicago Medical Society—hundreds of blotters sent out in all mail going from Educational Committee office.

Downstate

Illinois Federation of Women's Clubs—Public Health Chairman has worked closely with the Educational Committee. She has had numerous conferences with the Chairman of the Committee, discussing with him public health measures affecting the medical profession and the public. These problems have later been discussed in Committee.

Illinois Congress of Parents and Teachers—The State Chairman of the Summer Round-Up Campaign has worked closely with the Educational Committee. Following her preliminary work last spring, she wrote as follows:

"I do appreciate your fine spirit of helpfulness and continued interest and support. If at any time you have suggestions to make, please feel free to

make them for you are in a position to pass on suggestion and I assure you they will be thankfully received. We all hope that the follow-up will be successful. If you have any promotional ideas for encouraging mothers to keep on until the corrections are made, we will be only too happy to receive any help along this line."

Signed, Mrs. C. W. Balch, Chicago.

County Superintendents of Schools.

Extension Division of University of Illinois.

County Farmers' Institutes—Household Science groups.

Men's Service organizations—Rotary, Kiwanis, etc.

Y. M. C. A. and Y. W. C. A.

Churches.

Normal Schools.

Elks—Crippled Children program.

Auxiliaries to County Medical Societies—Committee has outlined entire course of study and supplied material.

Illinois State Nurses Association.

Illinois State Dental Society.

Illinois Tuberculosis Association.

State Department of Public Health—All Divisions.

MISCELLANEOUS

4,000—Cards representing membership of Chicago Medical Society have been filed according to Senatorial Districts by the Secretary and her assistant.

Numerous package Libraries and special material secured for members of Illinois State Medical Society in Cook County and down state.

Chicago physicians given an opportunity of reaching industrial men through noon talks in some large Chicago factories.

115—Moving picture films on health subjects secured for clubs and schools.

Educational Committee has had number of requests during last six weeks for material on State Medicine to be used by debating teams of colleges—Marquette, Michigan; Purdue University, Indiana; University of Toledo, Ohio; Bradley College, Macomb Normal, Monmouth College, Illinois. We have supplied suitable material to these debaters and reports indicate that opposing teams are "knocking State Medicine into a cocked hat," as stated by a Michigan physician.

Educational Committee has given assistance to other state societies and cooperated when possible in outlining their educational programs:

Minnesota—a representative worked in our office one week to learn our system. Offered to buy our press service.

New Jersey—sent representative to consult with Miss McArthur about our Educational program.

Iowa—sent secretary to study our work and will later send someone to learn more about our Speakers Bureau.

Indiana—Executive Secretary has offered to make good use of our package libraries for his speakers, giving full credit to Illinois State Medical Society.

Kansas—Assistant in office of State Secretary con-

sulted Miss McArthur about Press and Speakers Service.

Assistant Director of Medical Service of American Child Health Association, New York, visited office in November. She had heard of our educational program, wished to learn more about it.

The Committee has given assistance to Women's Auxiliaries to American Medical Association, Texas, California, Michigan.

Cook County Physicians' Club—negro physicians—have made good use of Educational Committee and in return have cooperated by filling numerous appointments in colored schools and churches and before colored women's clubs.

Thousands of clippings have been received and filed in the office of the Committee. Hundreds of magazines and periodicals have been clipped and articles filed for reference and use by members of the State and County societies.

Reports and letters relative to such subjects as Minimum Standards for holding Baby Conferences, the pre-school examination and periodic health examination campaigns, cooperation between medical societies and lay groups, etc., have been sent to county secretaries, secretaries of branch societies and others. Every effort has been made to keep component societies informed of questions and problems arising and of progress of our work.

Respectfully submitted,

JEAN McARTHUR.

A CALL TO ARMS BY THE LEGISLATIVE COMMITTEE

The election has brought forth some very interesting changes in the complexion of the next General Assembly in Illinois. A number of old faces will be missed and there is an increasing number of "first termers." It, therefore, behooves each member of the Illinois State Medical Society who receives this Bulletin to make an effort to acquaint himself with each member from his district, and again reiterate the necessity of the law-maker holding in abeyance any fixed ideas that he may have relative to laws concerning the public health.

Tell him to keep an open mind and not to take instructions from either the doctors or the cultists, anti-vivisectionists, or any other group that will seek his vote, and have the legislator agree that he will listen to both sides of any proposed legislation before definitely deciding how to cast his vote.

Your Legislative Committee is busy with a great many personal letters to key-men residing in close proximity to the different legislators, and we believe that with your help we will have a very satisfactory organization when the legislature convenes early in January, 1931.

In the "Medical Economics" of the August, 1930, issue, we notice a very complimentary article written by our good friend, Dr. George B. Lake, editor of "Clinical Medicine and Surgery," which we take the liberty to quote in full:

"If you are among the great majority of physicians

who complain loudly against legislation adverse to medicine, let this fact register:

"Not one of the several hundred bills which have been introduced in the Illinois Legislature during the last fifteen years, whose object was to lower the standards of medical practice or sanitary regulations, has become a law. This is true because the Illinois State Medical Society has a real live lobby and a membership of men who do something when government infringement threatens.

"Listen, further, to this record:

"Illinois is one of the few states which has a single board of examiners for all persons seeking a state license to treat the sick. Efforts of the "drugless healers" to secure examining boards of their own are null and void.

"The Sheppard-Towner Maternity Bill has been defeated in two different sessions of the Legislature, and so have several bills to legalize a \$5.00 annual registration fee for doctors, needless narcotic regulations, compulsory health laws and other measures which would add to a physician's responsibilities and subtract from his pocketbook.

"In one year the society's up-and-coming Legislative Committee knocked out a Sanatology bill, a Chiropractic bill, a Drugless Science act, a bill licensing professional correspondence schools, a mail-order optometry measure, an objectionable narcotic bill, a bill to prevent immediate cremation of human bodies, unless death was due to contagious disease, and an anti-vivisection bill.

"What a record! And this represents only the capsheaves of a large harvest of pernicious and nose-poking legislative activities.

"Lobbies are common these days. All really recherche business organizations have them. The pseudo-religious fanatics are among their staunchest supporters. One of the arch lobbyists in the classic (if not always dignified) halls of Congress now wears the stately toga of a United States Senator!

"Why shouldn't physicians have a lobby, too? The answer is that they should; and in Illinois, they have!

"All bills introduced in the Legislature, which affect the practice of medicine or the health of the people, are carefully scrutinized by the lynx-eyed guardians of the doctor's welfare, for the presence of "jokers." When one is found it is hauled out into the daylight by publishing the facts in the ILLINOIS STATE MEDICAL JOURNAL and in other ways, so that the real facts are obvious.

"And then the doctors get busy! Many of them know their Assemblymen and State Senator personally, and they pass the proper word along. Others send letters or telegrams, or circulate petitions, so as to leave no doubt in the minds of fellows at the State Capitol what will happen to them at the next election if they permit the chiropractors, sani-practors and other denizens of the twilight zone of medicine to warp their judgment.

"These fine fighters for sound and honest Medicine

cannot, however, rest upon their laurels. 'Eternal vigilance is the price of liberty.' The anti-vivisectionists, anti-vaccinationists, chiropractors, and other misguided and uninformed cults never sleep; and they are gluttons for punishment. Knocked cold this year, they bob up serenely next year, with plenty of money and a herd of protagonists, whose ignorance of facts is exceeded only by their vociferousness. The watch-dogs of the medical profession, however, are still on guard.

"What the Illinois State Medical Society has done and is doing, through its Legislative Committee, any other society can do—or could have done.

"It needs only foresight, co-operation and esprit de corps to substitute accomplishments for complaints!"

Our mailing list for the Legislative Bulletin numbers about one thousand. If you know of any physician who would be interested in receiving this information, we would be glad to add his name to the list, upon request.

Yours very truly,

JOHN R. NEAL, M. D.,
Chairman Legislative Committee.

Springfield.

Correspondence

PAST, PRESENT AND FUTURE MENACES TO THE MEDICAL PROFESSION

Brooklyn, N. Y., December 15, 1930.

To the Editor: If I had plenty of money I would send a copy of the December, 1930, ILLINOIS MEDICAL JOURNAL as a Christmas present to every doctor in New York State with a personal request that he read your analysis "Current Menaces of the Medical Profession" on page 418, Gilbert K. Chesterton's interview on page 393, The California Superior Court's Decision on page 399, and the beautiful tribute to Mother Mary Alphonsus (Hawthorne-Lathrop) on page 406, and feel that I had done these doctors a great kindness. I would accompany it with a personal letter from me giving them a history of New York struggle and hope to awaken a little more enthusiasm here in the Empire state.

Speaking of state medicine, I have no quarrel with necessitous state medicine; it is proper use of the police power of the State to safeguard the people's food, drink and medicines from adulteration and contamination, from source to consumer; to safeguard the people from epidemic infections and contagious disease, from port of entry to home; to dispose of animal and vegetable waste from sources to innocuous disintegration; to practice medicine in all its branches in the care of the sick and unfortunate, in institutions

created and maintained by the State for purposes of charity and correction. Beyond these reasonable limits state medicine becomes socialized medicine which is a symptom complex of a disease.

The disease was brought to this country from the internationale of Paris (1901) in the person of a carrier—a Russian doctor who took a job as medical bookkeeper or statistician for an insurance company during the incubation period which lasted until 1906 when the American association for labor legislation was organized.

There have been many outbreaks of the disease; in 1920 when the Volstead Act was enacted; an abortive attack in 1919-1920 when compulsory health insurance with maternity aid showed itself; one in 1921 that lasted for seven years when the Sheppard-Towner Maternity Bill was enacted; one in 1926 when the Webb-Loomis Re-registration Bill found us unprepared for treachery within.

Going back to the year 1919, those who were in Albany that year will recall that the distinguished president of our national medical association, in the uniform of colonel of the Red Cross appeared before a committee of the legislature urging compulsory health insurance with maternity aid and its complement. The panelization of all the agencies of healing, individual and corporate, animate and inanimate—down to the gasoline that propels the ambulance.

The ways were greased for launching a ship, designed by the American Association for Labor Legislation to sail on a sea of taxpayer's gold. Everything was set—even to the ministerially garbed executive secretary of the American Association for Labor legislation posing with uplifted bottle of statisticians' ink to smash on the prow as he christens it "Compulsory Health Insurance With Maternity Aid." By the providence of God the launching was postponed so that we, of Kings County, might have opportunity to snap a switch and set off a charge of dynamite, in 1920, that blew it to smithereens.

After that victory, in 1920, the doctors of this country (except in Kings County, New York), and in Cook County, Illinois, and in Illinois State Medical Society, through its forceful and fearless ILLINOIS MEDICAL JOURNAL), in the words of a current song, "gave themselves a pat

on the back," struck an attitude and said, "What a big boy am I!" took a nice, long seventh-inning stretch, rolled over and went to sleep. Not so the trinity of unrest, communist and uplifter; they settled down to work and went to New Orleans (1920) with the insolent boast, made to me at the Hudson County (N. J.) Medical Society, that the American Association for Labor Legislation would make the American Medical Association "come through, clean," with an endorsement of compulsory health insurance with maternity aid. The guild's facts and arguments, however, had been sent to correspondents in every county in this state, the guild's material had also been sent to correspondents in every state in the union and the delegates from the middle west, en route to New Orleans, informed and militant, planned an offensive which put the A. M. A. on record at the New Orleans meeting against compulsory health insurance with maternity aid.

JOHN J. A. O'REILLY, M. D.

THE PALMER TUBERCULOSIS SANITARIUM TO EXTEND ITS SPHERE OF SERVICE

Springfield, Ill., December 19, 1930.

To the Editor:

The readers of the ILLINOIS MEDICAL JOURNAL may be interested to know that about February 1st we will open a section for persons suffering from certain chronic diseases and convalescent from surgery and acute illness in connection with this institution. The structural changes necessary to this expansion of program are well under way. The section for non-tuberculous patients will have its own diet kitchen, its own recreation quarters and its own gardens and terraces, and facilities are provided for heliotherapy, physiotherapy and occupational therapy.

We have had this expansion in contemplation for several years and during that time we have received heart and thyroid cases from several interested physicians who have expressed satisfaction at the results.

As to the urgent need for facilities of this kind and the entire safety and practicability of treating non-tuberculous patients in an institution of this kind, we have the unqualified en-

dorsement of the following physicians who have granted the use of their names: Dr. Frank Billings, Dr. James A. Brittin, Dr. Joseph A. Capps, Dr. James G. Carr, Dr. Charles A. Elliott, Dr. G. K. Fenn, Dr. N. C. Gilbert, Dr. Harold E. Jones, Dr. Joseph L. Miller, Dr. Harry E. Mock, Dr. Wilber E. Post, Dr. Don C. Sutton, Dr. Frederick Tice, Dr. George W. Webster, of Chicago; Dr. Willard Bartlett and Dr. J. Curtis Lyter, of St. Louis.

STATE MEDICINE

Marquette, Mich.,

December 17, 1930.

To the Editor: Two weeks ago there was a debate at the Northern State Teacher's College of this city on State Medicine. I requested one of the boys who was on the side against State Medicine to write you for some literature on this subject, which you so kindly supplied. Safe to say that in this debate State medicine was knocked into a cocked hat. I thank you very much for the assistance rendered by you.

As you probably know Senator Cousins has appropriated ten million dollars in this State for Children's Clinic. This so-called Cousins' fund is to be used at the rate of seven hundred thousand dollars per year for the next twenty years. This fund is now constructing a clinical building in connection with St. Luke's Hospital of this city.

Up to now the Upper Peninsula of Michigan has not been invaded by this form of charity for the pauperization of our inhabitants. But, last March the committee from the Cousins' fund, and Dr. James D. Bruce of Ann Arbor who represents the Department of Post Graduate Medicine of that university travelled through this neck of the woods and visited the different County Medical societies soliciting the support of the medical profession to aid in every way possible the ideas and principals of the Cousins' fund. Special meetings were called and at no time did they ever give the boys a real idea of their plans. It was explained that Michigan State Medical Society and the Department of Medicine of the University were supporting the Cousins' method of doing business. Owing to the fact that this fund was being guided by the State Society and the Med-

ical Department of Michigan we hoped that everything would be done to safeguard the practitioner of the Upper Peninsula. They also said that the medical profession who cooperated in these activities would receive no pay for their services.

I repeatedly warned colleagues that the Cousins' fund would be equivalent to a Greek gift. As you well know that at the siege of Troy the Trojans accepted the wooden horse and lost the city.

Last night at the County Medical meeting the members are beginning to have their eyes opened to the fact that the State Medical Society and the University of Michigan would have very little influence in the running of this clinic. I made a short speech and following my remarks a committee of three were appointed, myself as chairman, to formulate a resolution indicating how far the medical profession would assist them providing that it could be proven to us that the clinic would not pauperize the people and reduce our fee schedules. (God knows that our fees are small enough now.) I will have to help formulate the resolutions concerning the attitude of the Society towards the Cousins' fund. I am hoping that you can give me some advice based on experience as to how these rich men's hobbies have worked out in your city.

This resolution will also be forwarded to the various secretaries of the Upper Peninsula.

Your editorials are read and reread by me and I want to specially compliment you on the comprehensive scope of your last editorial published in the December JOURNAL.

A. W. HORNBOKEN, M. D.

PLAN OF RE-ORGANIZATION OF COOK COUNTY HOSPITAL

Oak Park, Illinois,
December 15, 1930.

To the Editor:

The Chicago Medical Society through its Medical Policy Commission is working on a plan of reorganization of the medical work at the Cook County Hospital which should be of interest to the members of the Illinois State Society. The Chicago Medical Society is interested in this plan for two reasons: first, because by the adoption of this plan it is hoped to decrease or at any rate to obviate the neces-

sity of any increase in the number of hospitals rendering free service to the people of Chicago and Cook County; second, it is believed that the plan will materially improve both undergraduate and post-graduate teaching and will lead to a great increase in clinical research with a resultant elevation of the character of medical service furnished to this community. It is for the latter reason that we believe that the state society will be particularly interested.

At the present time the medical work at the hospital is done by an attending staff appointed by civil service examination for a term of six years, assisted by house physicians or internes who also are appointed after a civil service examination for a period of 18 months. As a rule the attending men and internes are assigned to a service in about the proportion of two attending men and a senior and junior interne to each 50 patients.

There is a most excellent pathological department under the charge of Dr. Jaffé, and adequate departments for x-ray, bio-chemistry, etc., so that it is possible to do excellent routine work. The routine work is however so extensive that it is almost impossible to undertake the extra-routine study that is so essential in making the investigations that are so necessary for clinical research. It is to provide for such studies that the plan is being pushed.

It is proposed to create five distinct services in the hospital, one being assigned to each of the Class A medical schools and one to be known as the "Open Service" is designed to take care of students of any other colleges recognized by the State Board of Health and to be a center for post-graduate teaching. Each of these services will have from 3-400 patients.

Certain changes in the medical organization are proposed. At the head of each division is to be a representative of the school or in the case of the open service, some outstanding members of the profession, who shall direct the work of the division. The attending men are to be appointed as at present by civil service examination open to all practitioners of the county. The candidates are to indicate the division they prefer but if that division is full any who qualify may be appointed to another division that may not have its list full. Provision is made also

for junior consultants, research fellows, and residents who shall be paid by the colleges. Students may be assigned as ward clerks to assist in the routine work of the ward. No change is contemplated in the interne service.

The deans of the four colleges are in full accord with the plan and believe that the necessary funds will be available to carry out their end of the bargain. They have agreed upon the following requirements:

1. Equal quotas of patients for each school.
2. The privilege of doing bedside teaching.
3. The assignment of students as ward clerks.
4. The assignment of research fellows.
5. Assurance that any plan worked out will be properly safeguarded and reasonably permanent.

Provision is made for the development of special clinics for certain groups of cases to which appropriate cases will be referred irrespective of the divisions when the creation of such clinics seems advisable.

The plan proposed will make for an increase in the facilities available for clinical work and particularly an increase in the personnel which is absolutely necessary. It is done too without any sacrifice of the facilities available to the patients and with no increase in cost to the community. It should be productive of valuable clinical studies which will be available to the physicians of the state. It should furnish increased facilities for post-graduate study particularly to the younger men of the state.

ELLIS K. KERR.

THE DELINEATOR CALLED TO ACCOUNT

THE WOMAN'S AUXILIARY TO THE CHICAGO
MEDICAL SOCIETY

December 4, 1930

Dear Member:

The following article was sent to us by the State Medical Society and we are most desirous that every member of The Woman's Auxiliary to Cook County Medical Society act promptly thereon.

In the September number of *The Delineator*, Celia Caroline Cole presumes to give some sage

medical advice, and as treatment "for the puffy look around the eyes and lines and wrinkled lids," among other things, she says, "Eye exercises—spectacles if you have to have them, but better take the eye exercises and have a good osteopath adjust the nerves in the back of the neck and backbone and then dispense with spectacles." Further on she says, "Use a nourishing cream on the lines and a mild astringent on the puffiness. Learn to rest your eyes by palming, or when you are out in public and can't palm, merely by thinking of lovely things you have seen—feel the eyes relax with pleasure—or by thinking of deep, deep, smoky, floating, velvety black."

Think of feeding such tommyrot to sensible readers, and imagine, if you can, how idiotic this advice appears to many intelligent readers, whether they know much about scientific medicine or not. Just how the proprietors and owners of *The Delineator* can square themselves after accepting for publication such nonsensical stuff, remains to be seen, and it is more difficult to understand why *The Delineator* permits its pages to be so prostituted. As a suggestion to the members of the Woman's Auxiliary of the American Medical Association, we recommend that each and every one of them write a letter of protest to *The Delineator* and accompany it with the request that *The Delineator* make suitable amends or cancel the subscription of the writer. You can bet a dollar against a punched nickel that if even a few hundred members of the Woman's Auxiliary, with their influence in Women's Clubs, attack *The Delineator* for printing such untrustworthy information as herein quoted, there will be a right-about-face policy adopted by the publishers and owners of *The Delineator*. Intelligent people do not want their favorite periodicals to be dealing out false, unscientific and untrustworthy articles concerning the practices of medical pretenders, and if the owners and publishers of *The Delineator* are wise, they will not have a repetition of articles such as the one to which we refer. In writing, please do not mention the Auxiliary, or any woman's organization.

Yours very truly,
MRS. GUSTAV KAUFMANN,
President.

THE PRESIDENT MEDICAL WOMAN'S CLUB OF CHICAGO URGES THE REMOVAL OF THE MATERNITY AND INFANT WELFARE SUPERVISION TO THE UNITED STATES PUBLIC HEALTH SERVICE

November 21, 1930.

To the Honorable Herbert Hoover,
President of These United States,
Executive Offices,
Washington, D. C.:

This message urges the removal of the maternity and infant welfare supervision from the Children's Bureau to the Department of Public Health under a U. S. surgeon general.

These United States have no asset of comparable value to that of the lives and health of their peoples and especially of their children. Such responsibility as this Bureau assumes should be vested in those specially qualified through training and experience to accept it, not left to flounder about under political and lay domination which needless to say is, at best, unenlightened, if not wholly selfish.

PETRA M. DAHL, M. D.,
President,
Medical Women's Club of Chicago.

REPLY

THE WHITE HOUSE, WASHINGTON
November 22, 1930

My dear Dr. Dahl:

This will acknowledge the receipt of your telegram of November 21, which is being brought to the President's attention.

Sincerely yours,
LAWRENCE RICHEY,
Secretary to the President.

ALLEGED SUPERIORITY OF NORMAL HUMAN SERUM OVER CONVALESCENT SERUM IN POLIO-MYELITIS

W. H. Manwaring, Stanford University, California, and *Western Medicine*, December issue, is quoted as follows:

"Why pay \$10 per 100 cc. for convalescent human blood, when a more potent, more dependable antipoliomyelitis serum can be prepared from normal human blood? Why rush con-

valescent serum by aeroplane to a distant patient, when better therapeutic results can be produced with the serum or whole blood of any adult member of the patient's family? Why be disappointed over failure of routine quarantine measures to control this disease, when the causative agent is omnipresent in the human environment, only an occasional immunological defective ever developing symptoms? These are some of the unorthodox possibilities suggested by the recent experimental work of three Chicago physicians,¹ who, for the first time, have applied accurate quantitative methods to the serologic study of this disease. Of course, no final conclusion can be drawn from their data, till their alleged evidence is confirmed by other investigators, with other virus strains and in other environments. Their results, nevertheless, suggest a new immunological logic in infantile paralysis and offer new hope of its ultimate medical control.

"Dr. Shaughnessy and his collaborators were struck by the conflicting clinical reports with convalescent poliomyelitis sera, by Dr. Zingher's alleged therapeutic success with an occasional normal human serum,² and by the total lack of quantitative serological study with adequate controls. In confirmation of the work of others, they found that full strength convalescent serum from poliomyelitis cases often, though not invariably, kills, inactivates or neutralizes poliomyelitis virus when mixed with it in equal proportions in the test tube. But contrary to previous expectations they found that but 40 per cent of these sera were of sufficient strength to show any demonstrable viricidal action in dilutions as high as 1:30, corresponding roughly to the maximum practicable therapeutic dose in human medicine.

"With the sera of normal adults, however, they obtained very much better results, 80 per cent of them neutralizing the same virus in 1:30 dilutions. Of course, they did not make the mistake of assuming that this test tube titer is an accurate measure of therapeutic value, but from their experimental evidence they did feel justified in recommending that 'clinicians study the value of normal sera, known to neutralize virus (in vitro), in the therapeutics of poliomyelitis.'

"Of equal interest is their observation that none of their sera of normal infants under two years of age showed any viricidal action whatsoever in dilutions higher than 1:2 while 90 per cent of the sera of insusceptible family contacts and of unexposed children over two years of age neutralized this virus in dilutions as high as 1:30. Apparently there is, in the environments studied by them, some omnipresent specific or relatively specific factor causing mass immunization of children before the beginning of the third year. Similar, though less rapid, mass immunizations are, of course, well known in diphtheria and scarlet fever.

"Their work further suggests that the children who develop poliomyelitis are to a large extent immunologically defective, since but 30 per cent of them are able to develop permanent high titer viricidal antibodies. Among the insusceptible contacts and apparently unexposed normal children 90 per cent develop this high-titer humoral defense. Of course, this conclusion is invalid if it can be shown that the humoral viricide is not the sole or essential factor in antipoliomyelitis immunity."

REACTION TO ANTIMENINGOCOCCUS SERUM

During several quarantine periods for epidemic cerebrospinal meningitis at Maliola Island, Honolulu, T. H., Arthur Duryea, Honolulu, T. H., (*Journal A. M. A.*, Nov. 22, 1930), says that early diagnosis and prompt treatment proved the most effective agent in obtaining a low mortality rate (14 per cent). Quarantine conditions were such that it was possible to isolate and treat patients in the very earliest hours of the disease. It was decided that any patient with the following signs and symptoms should have a diagnostic spinal tap and prophylactic administration of antimeningococcus serum: (1) headache; (2) fever (over 38 C., or 100.4 F.) with no obvious cause; (3) either a positive Oppenheim reflex or Gordon reflex. In many of the cases tapping was done so early in the disease that clear spinal fluid under increased pressure was found on the initial tap, but with no abnormality of chemistry or cell count. On subsequent examinations a high cell count, absent sugar, positive globulin and characteristic organisms were found. In some cases several days elapsed before organisms were found either by culture or by direct smear. It seemed necessary, therefore, to ascertain the response of normal individuals to the intraspinal administration of antimeningococcus serum. Two normal healthy men who had not been exposed to epidemic cerebrospinal meningitis were selected as controls. Twenty cubic centimeters of spinal fluid was

1. Shaughnessy, H. J.; Harmon, P. H., and Gordon, F. B. Neutralization of the Virus of Poliomyelitis by Human Sera. *Proc. Soc. Exper. Biol. and Med.* 27, 742. May, 1930.

2. Zingher, A. J. *A. M. A.*, 68, 817. 1917.

withdrawn by cisternal puncture and replaced by 20 cc. of a concentrated serum preparation. Subsequently six cisternal and lumbar punctures were done, and fluid removed for examination only. In Duryea's epidemic cerebrospinal meningitis cases the response of the spinal fluid differs only in the continued presence of sugar in normal, or greater than normal, amounts, and in the absence of bacteria.

ALLERGY AND THE ACID-BASE BALANCE

Harry Beckman, Milwaukee (*Journal A. M. A.*, Nov. 22, 1930), discusses the underlying metabolic dyscrasia and the potential alkalosis as a causative factor. He gives the factors involved: Diabetes mellitus, starvation, pregnancy, acute infectious diseases, sea voyage, sojourning at high altitude, asthma in the young, gastric acidity and allergy, calcium therapy, whiskey and acetylsalicylic acid and mineral acid therapy. He also gives suggestions for future study. He concludes that thorough chemical and physical studies of the blood and urine should be made in the large allergy services, with the object of determining the effect of all types of therapy, including desensitization, on the acid-base balance. Ketogenic feeding should be instituted in a carefully controlled series of asthma and hay-fever cases. A study of acid therapy should be undertaken on a large scale. Perhaps the best agents to use will be found to be U. S. P. dilute hydrochloric acid in large doses, ammonium chloride or sodium acid phosphate. I see no reason why nitrohydrochloric acid should be in any way superior to these more familiar substances. In any case the patients should be urged to eat freely of meats, fats and cereals, while green vegetables and fruits should be strictly forbidden because of their alkaline ash. The effect on allergy of all other acidotic states, such as that occurring during exercise and as a part of the picture in severe chronic nephritis and in acute diarrhea, should be studied.

PNEUMOCOCCUS TYPE I PNEUMONIA

A series of 3,662 cases of pneumococcus pneumonia in adults and 271 cases in children have been studied clinically and bacteriologically by Russell L. Cecil and Norman Plummer, New York (*Journal A. M. A.*, Nov. 22, 1930). Of this series 1,161 cases were type I infections and form the basis of this study. Type I pneumonia is considered as a definite clinical entity; it usually runs a typical course, terminates by crisis, and has a high incidence of complications. Type I pneumonia is the most prevalent of all the types, constituting approximately one-third of all adult lobar pneumonia treated in Bellevue Hospital. It is quite rare in infants under 3 years of age, but is particularly prevalent in young adults. The mortality rate in 412 patients receiving no serum is 28.2 per cent. For reasons not entirely evident the death rate for type I pneumonia in Bellevue Hospital has shown a steady increase since 1921-1922, when it was 20 per cent, to 1928-1929, when it was 42.8 per cent. The death rate

for septic type I patients without serum is 66.7 per cent. The evidence in support of the therapeutic value of type I serum is presented from an experimental and clinical standpoint. In a series of 171 cases treated with Huntoon's antibody solution, as compared with an equal number of control cases, the efficacy of the solution is shown by a marked reduction in mortality rate. The disadvantages of this preparation are indicated. Felton's concentrated antipneumococcus serum is described and evidence is presented to show that it is often more than ten times as potent as unconcentrated preparations. A series of 239 cases of type I pneumonia treated with Felton's serum shows a death rate of 20 per cent, as compared with a mortality rate of 31 per cent in a control series of 234 untreated cases. There is a further reduction in death rate to 11.7 per cent in cases treated within seventy-two hours after onset. Type I serum is no longer in the experimental stage. When administered early and in adequate dosage, the clinical results are striking. The present study demonstrates that concentrated serum possesses all the therapeutic value of the unconcentrated preparation. Furthermore, concentrated serum has a much higher potency and a lower content of chill-producing substances and horse serum proteins which make it more easily administered, and less frequently followed by chills, serum reactions and serum sickness.

CONCERNING THE CLINICAL SIGNIFICANCE OF THE SO-CALLED HEART HORMONE PREPARATION.—Max Winternitz. (*Med. Klin.*, 25:1218, 1929.)

According to the observations in the clinic of Professor R. Schmidt it was shown that cardiac hormone extracted from the ox heart according to Haberlandt is effective in anginoid symptoms as well as in the attack, prophylactically. According to the indication of the patients treated, nitrite is incorporated for the permanence of the effect and prophylactically. The action apparently takes effect by means of dilation of the coronary blood vessels, which is more lasting than that of nitrite. The Zuelzer and the Haberlandt preparations do not exercise these effects which the clinicians have determined to consider as heart hormone.

CONCERNING THE EFFECT OF THYROXIN ON THE IODIN CONTENT OF THE BLOOD IN MYXEDEMA PATIENTS.—B. Eisler and A. Schittenhelm. (*Zeitschr. ges. exp. Med.*, 68:487, 1929.)

The iodine content of the blood in myxedema is very much decreased. Thyroxine is effective in increasing the iodine content of the blood and the basal metabolism. The iodine content of the blood rises to values above normal as soon as the thyroxine effect sets in and in spite of continued thyroxine dosage falls to roughly normal values. There is no parallel between basal metabolism and iodine content of the blood in myxedema patients during the administration of thyroxine. The iodine concentration of the blood of normal persons is not increased after prolonged application of thyroxine.

Original Articles

SULPHUR IN THE FEVER TREATMENT OF PARESIS*

CHARLES F. READ, M. D.
ELGIN, ILL.

The literature of the treatment of paresis has become in the last four years little more than a recital of varied experiences with fever producing agents. Reports upon malaria treatment compose at least four-fifths of the long list, together with occasional articles upon the use of typhoid vaccine, sodoku, relapsing fever, sapro-vitan (a saprophitic bacterium obtained from milk), anti-chancroidal vaccine, trench fever, tuberculin, diathermy, hot air, and hot baths.

All methods involving febrile reactions seem to have produced results worthy of record. Already the statistics of malaria therapy have attained huge proportions. Thus in 1928 West-phal and Back¹ tabulated 1,568 cases treated in seven of the larger European clinics, including their own at Bonn, with percentages of those returned to work "with slight psychic disturb-ance" averaging 21.4; of those capable of work, though with defect, about 20 per cent.; and of those made worse, or who died, running from 10 to 23 per cent. At Bonn, of 100 cases re-ported one and a half to three years after treat-ment, 13 were still in good remission, 18 in par-tial remission, and 30 slightly improved. Six-teen were not influenced by treatment and 23

were worse or had died. These authors view with regret their somewhat meager results as compared with reports of 50 per cent of good remissions (Sioli), 52.5 per cent. (Kirschbaum), 33 per cent. (Gerstman), and 33 per cent. in the Munich clinic. They are cheered, however, by the figures of others ranging only from 12.7 to 17 per cent. of good remissions.

Vallejo Nagera's compilation of 43 authors (quoted by Prussak²) averages 29.6 per cent. of complete remissions and 25.3 per cent. incom-plete out of 5,000 cases in all. Bunker and Kirby³, reviewing results in 156 patients treated from one-half to four years previously, found 33.3 per cent. still in remission and 17.3 per cent. still showing marked improvement. They quote statistics of 1,004 untreated cases at Man-hattan State Hospital (1911-18) showing but 3.5 per cent. of spontaneous remissions (Ray-nor).

The writer, with H. Paskind,⁴ reported sev-eral years ago a series of something over fifty cases treated with malaria at a state hospital (Elgin) with 19 per cent. of good remissions obtained during treatment or shortly thereafter. Later follow-up was impracticable.

Unfortunately, however, inoculated malaria has a death rate of about 10 per cent. (12.2 per cent. according to Bunker and Kirby), and to get away from this as well as the uncertainty and inconvenience of obtaining an infective agent when required, other means of producing febrile reaction have been sought—notably by the in-travenous injection of typhoid vaccines. In 1927

*Read at Meeting of Illinois State Medical Society, May 21, 1930.

Fever Treatment of Paresis by Injections of Sulphur in Olive Oil.

DATE 1929	AMOUNT INJECTED	HIGHEST TEMP.	HOURS OF IOI OR BETTER	WHITE CELL COUNT	BLOOD PRESSURE	DATE 1929	AMOUNT INJECTED	HIGHEST TEMP.	HOURS OF IOI OR ABOVE	WHITE CELL COUNT	BLOOD PRESSURE	
9/24	2 c.c. 1%	104°	16	22,600	122/68	11/2	2 C.C. 1%	102°	14	29,000	120/100	
9/28	3 " "	104	9		126/72	11/5	4 C.C. "	103.2	26			
10/1	3.5 " "	104.8	7	12,800 (104.8)	132/72	11/8	3 " "	103.4	12	25,000	140/70	
10/4	4.0 " "	103.8	17	23,400 (103)	120/70	11/12	6 " "	102.2	12	25,000	140/90	
10/8	5.0 " "	104.4	8	26,200 (101.4)	114.76	11/15	8 " "	102	14	Behavior much better but still euphoric.		
10/11	7.0 " "	105.8	24	20,000 (103)	102.58	11/19	6 " "	102	12			
10/13	8.0 " "	104.8	9	26,400 (100.2)	104/82	11/21	8 " "	104	14	Temp. was still 100.8 when this dose was given Site of injections now growing		
10/18	10.0 " "	102	10		110/88	11/28	10 " "	102.8	20			
10/26	5.0 " "	101	5			quite indurated and treatment stopped for two weeks. Patient give up idea of \$1,000,000 in bank; says head is much clearer.						
10/29	8.0 " "	103.4	7									
11/1	7.0 " "	104.	6		120/56	12/5	6 C.C. 2%	101	8	Now appears quite himself, but sent to Elgin for treatment with HYPERMAGNE.		
11/5	8.0 " "	104.4	17		138/64	12/10	8 " "	104.2	20			
11/8	8.0 " "	104	26	Febrile for 46 hrs.		12/13	50 C.C.	100	20	Some loss of weight, red cells and hemoglobin. Feels well.		
11/8	8.0 " "	104	26	Febrile for 46 hrs.		12/13	50 C.C.	100	20			
48	75 c.c.	100	180	AVERAGE CELL		12/13	50 C.C.	100	20	Some loss of weight, red cells and hemoglobin. Feels well.		
DATE	TOTAL AMT.	HOURS	COUNT	22,500		12/13	50 C.C.	100	20			
PATIENT ADMITTED IN CONVULSIONS - DISCH. IN GOOD CONDITION - NO OTHER TREAT.												

Drs. Kunde, Hall and Gerty⁵ reported the restoration of 21 out of 49 patients treated in this manner at the Cook County Psychopathic Hospital, since when many others have confirmed their observations. Technically this is a much neater therapeutic expedient than malarial infection, but shares with the latter some of its disadvantages such as severe chills, marked lowering of blood pressure at times, and sudden rise and fall of temperature.

Various methods of producing infective fever as above mentioned have been tried out without gaining popularity because of one drawback or another. Of late some very interesting work with diathermy has been reported by Neyman⁶ and others with outstanding results according to these authors. It is a clever physical expedient having the outstanding merit of producing a temperature rise without chill and entirely under the operator's control, but it requires an expensive and rather cumbersome apparatus, together with constant skillful technical attention during administration.

If, then, as the majority of writers agree, there is nothing specific in any one form of fever therapy the search for other methods of producing temperature reactions may well continue with the hope of discovering safe, convenient and reliable means which may be applied when expedient. Thus in the summer of 1929 the writer came upon the reports of Marcus and Kallman⁷ concerning the injection of sulphur in olive oil after the method of Knud Schroeder, marked improvement being claimed in 41 per cent. of cases treated. Schroeder of Denmark,⁸ basing his work upon that of Meyer-Bisch⁹ in arthritis deformans (derived in turn from the practice of Borg and others from 1911 on), began the treatment of paresis in 1924 and reports a patient treated in that year still at work in full remission.

Schroeder made various reports in 1928, '28 and '29, and reviews his results to date in the *Lancet* (London) of November 23, 1929. Up to that time he had treated some twelve patients with intramuscular injections of a one per cent. suspension of sulphur in olive oil, administered twice weekly for five weeks in two or three courses interrupted by rest periods of two weeks. Four of the twelve cases had maintained complete remissions. He felt that this method of

inducing fever was of value because it was innocuous, controllable, readily available and easily regulated according to reactive idiosyncrasies. Schroeder cites a few others who have used this method abroad and in South America with alleged success, and further relates encouraging results obtained in cerebro-spinal lues, tertiary lesions, and recent infections, all without coincident specific treatment. He does not consider a certain height of temperature to be necessary to good results, and rather leans toward the conception of a specific reaction, agreeing with Meyer-Bisch that the local tissue disintegration at the site of injection may result in the formation of sulphur-albumin combinations which are absorbed and act systemically.

Since no work along this line had been reported in the English literature, and but little abroad, and because protein shock seemed to be excluded (?) permission was obtained to treat a few patients at Cook County Psychopathic Hospital—with the consent of their relatives. Work was begun in October, 1929, and continued upon a small scale until very recently with never more than four patients under treatment at one time.

It is fully realized that the number of cases presented—only 14 in all—is too small to have statistical value, especially since the time elapsed since the first cases were dismissed is short. The interest of this report, if any, lies in the fact that results closely approximating those of other fever therapies have been obtained, for the time being at least, with a very simple procedure the exact mechanism of which is not itself at all simple.

The patients treated have been males, where permission could be obtained and where the diagnosis of paresis seemed assured by the history, physical findings, mental attitude and spinal fluid findings. In all cases the resident physician and interne agreed in the diagnosis. Injections were made between seven and eight in the evening so that the temperature might be recorded by the day force of nurses. The slides (see cuts) present the type of reactions obtained, dosage, etc.

Injections were first made into the glutei but later into the abductors of the thigh where absorption is better. Ten c.c. is the maximum amount of the oil suspension that can be com-

fortably injected, eight is a better limit. The first dose varies from one to two c.c. according to the weight of the subject and subsequent amounts are based upon the extent of the successive febrile reactions, quite as in typhoid vaccine therapy. When the dosage of 1 per cent. suspension becomes too bulky a 2 per cent. may be substituted for a time. Fever begins to develop ten to twelve hours after injection, rises to its greatest height—103-105.5—in another four hours. Usually it descends rather rapidly for a time and then more slowly, although long continued reactions—even up to 24 hours are not uncommon with large dosages. Chills occurred in only one case; headache is absent. A local reaction at the site of injection develops along with the fever and induration persists for a day or two. Soreness is complained of but abscess never develops.

The white cell count runs from 20,000 to as high as 40,000, subsiding with the fever. Blood pressure, systolic and diastolic, is often lowered but never so as to be a cause for anxiety. The blood chemistry in a few cases examined showed nothing of note. Hemoglobin and red cell count are not as a rule materially reduced and loss of weight is very moderate. Serological findings have not thus far been materially changed.

Thus far only fourteen patients have been treated. Obviously this number is too small and the time too short for one to draw more than tentative conclusions from the results obtained. The present impression of the writer—whose experience extends over many years with various types of treatment—runs as follows: Eleven of the fourteen have shown marked improvement and of these eleven six appear to be in complete remission. Two more—of the eleven improved—may very possibly make a complete remission,* and the remaining three, though much better are probably hopeless so far as social readjustment is concerned. Three patients have shown no improvement whatever. On account of poor home conditions all but three have been sent to state hospitals for the follow-up arsenical treatment—tryparsamide where not contra-indicated.

Thus far the writer is satisfied that the results above stated compare favorably with those

obtained in his experience with malaria and tryparsamide therapy, and that sulphur may eventually find a place in the fever treatment of paresis. Its use is especially recommended in cases not thought suitable for malarial or typhoid vaccine therapy, or where the malarial infection must be stopped for one reason or another before enough febrile rises have occurred, or when the infecting organisms can not be obtained. It is hoped that others may try out and report upon a procedure which seems to be so simple, safe and readily available, and at the same time productive of excellent results.

Grateful acknowledgment is due the medical superintendent and staff of the Psychopathic hospital for permission to carry on this work, to the Abbott Laboratories† for their kind cooperation in furnishing the therapeutic agent, and to a number of Cook County Hospital internes who have materially helped to make this investigation possible.

750 S. State Street.

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DISCUSSION

Dr. George Michell, Peoria: It is always gratifying to hear of advances in treatment, and particularly so in a disease which only yesterday was considered to be hopeless. I think in the hands of most of the men who treat paresis, the treatment by production of high temperature has been as satisfactory if not more so than any other treatment. I have found the malaria treatment the best. We have tried most of the others, and the fact that Dr. Read and his colleagues are working on a simpler treatment of this character is, as I say, very gratifying. The others are, as Dr. Read pointed out, very complicated, and I think the reaction with ratbite fever is severe, though I have had no fatalities. I would take it that the sulphur in itself has no particular efficiency. Someone has asked how sulphur could help a dementia paralytica. I think it might be well to get an idea of how the tryparsamid would act following the treatment. We are certainly indebted to Dr.

*Dec. 18, 1930. Both have in fact made complete remissions since the above.

Read and to his colleagues for producing a treatment which can be handled by anyone without hospitalization and which will probably get some results in many cases.

Dr. Frank P. Norbury, Jacksonville: The study of paresis has always been interesting to those concerned in its treatment and the social problems that it precipitates. I am not pessimistic as to the benefits of treatment, but rather optimistic. I heard over forty years ago the same enthusiasm about its treatment as noted here today. Then it was by the use of hypodermic injections of bichlorid of mercury. Since that time we have had at frequent intervals suggested treatments that contribute to the arrest of this disease. I am not so optimistic as to the possibilities of cure. I have known remissions to occur that lasted over seven years. I have three cases under observation now with prolonged remissions, one of whom has gone over five years without treatment and is still in remission. I am not saying that to discourage treatment. Paresis is paresis and when once established has no very promising future. The types are so varied that we have to consider other things than the essential pathology. As an example: the type of the individual having the disease and the very varied contributing factors, sociologic as well as physical, are part of the problem. I think if one reads Warthin's story of syphilis one will not be so enthusiastic about the possibility of cure, but we still may hope to have relief if treatment is instituted early enough. I see no reason why we should not accept any method of treatment that will bring about a remission.

Dr. Charles F. Read, Chicago (closing): Regarding the specificity of sulphur, I can only say that it has been used in tertiary cases and found to be apparently of real specific value. Of course, we feel that the principal value is in the febrile reaction. Regarding tryparsamid, I have treated many cases. I have great faith in it, but I am afraid of injuring the optic nerve. No matter how fever is produced, the case must be treated with arsenicals and bismuth following this therapy. I am not an enthusiast. I have not been working as long as Dr. Norbury has, but I have been working a good many years, and I have never seen anything to compare with fever treatment in my experience.

When we compare 3 per cent. or a little over with 33 $\frac{1}{3}$ per cent. of remissions following fever therapy, there is no doubt but that something is being done for these patients. Many of these spontaneous remissions cited by Dr. Norbury may have occurred following pneumonia or intercurrent infection in which the patient ran a fever for some time and as a result of that fever the remission occurred. I am using the term remission not "cure," although I have known cases that continued well for many years following tryparsamid. Some of our sulphur patients were of the stupid type, but even they improved tremendously, one to full remission and one almost so.

ST. VINCENT'S INFANT AND MATERNITY HOSPITAL; ITS PAST AND FUTURE

MAURICE LAMM BLATT, M. D., Sc.D.

CHICAGO

For fifty years St. Vincent's Infant and Maternity Hospital has stood with open doors, a haven of refuge for that most troubled of souls—the unmarried expectant mother, be she well-to-do, in moderate circumstances, or of uncertain means. It stands, too, ready to accept that most blamelessly needy and helpless of human lives—the foundling and the unwanted baby.

On the eve of its semi-centennial, a 10-story building, occupying a block on North La Salle Street from Huron to Superior Streets, has just been completed. In construction and in design it represents all that is newest and most efficient in obstetrical and pediatric equipment. It is on a par with any one of the choice institutions of the wealthy in all the essentials of modern scientific care, and it is a fitting tribute to the selfless service of those who for fifty years have devoted their lives and their talents to this important cause.

In this building, one floor is entirely devoted to married mothers. In common with the other obstetrical floors, it has its own nursery. Private rooms, two bed wards and four bed wards are available for the use of any reputable physician in the state. He will have, in this institution, every advantage any large, well organized obstetrical department offers. The fee charged his patients will be moderate.

To St. Vincent's may come the young unmarried girl who is to have a baby, and whose morale is being undermined in her home environment. She will receive every care; she will have sanitary and cheerful surroundings. She will be under careful obstetrical prenatal observation. The obstetrician who will deliver her is a specialist in his field, and the care of her child will be under the supervision of recognized pediatricians. As soon as she is physically able, she will be given an opportunity to learn how to take care of her child, if she chooses to take it home. And, should circumstances be such as to make it advisable to leave the child in care of the institution, she will have the satisfaction of knowing it will receive the best of pediatric attention while there. She will be assured that in all

probability it will eventually be taken into the home of some childless couple, who will bring it up as their own.

There are no barriers at St. Vincent's, either of color or creed. All may come who need its services, whether they can pay or not. The ideal of the institution is to provide care for any expectant mother who needs it, and to give her child its birthright of an opportunity in life.

The history of the institution goes back through fifty years of service. It was incorporated in 1881, with its headquarters for the first six months in a little frame house on Orleans Street, where four sisters of St. Vincent de Paul cared for forty infants and children. By the end of that time, John Carroll, throughout his life a generous patron of this institution, had offered it the second floor of his residence at Orleans and Superior Streets. St. Vincent's needed the room, for it already found itself a maternity hospital, principally for unfortunate women. It had a ward for twenty women, and seven private rooms for those who desired such accommodations. After several years, it moved again, this time to Superior and La Salle Streets, on part of the site of the present building.

The accomplishment in these quarters was almost beyond belief. An average of 1,000 infants and children was taken care of yearly, over a period of almost fifty years! Many of these babies, from thirty to fifty per cent. of them, have been placed in private homes for adoption. This means that the infant was given every care and treatment necessary to make it a healthy happy baby, desirable to the couple adopting it, and that the foster parents, too, were subjected to thorough investigation before the infant was intrusted to them.

So carefully, in fact, are the character and environment of prospective foster parents investigated, that it is a matter of record that of all the babies so adopted, there has not been a single case of delinquency in over fifteen years!

St. Vincent's is the official harbor for "doorstep" babies. To it are brought all the foundlings turned over to the police. The public generally associates it with this activity, and knows little of the valuable medical and scientific care given the babies, the obstetrical treatment of prospective mothers, the training of these

mothers to care for their children, the domestic science school for the mothers, the recreational activities, and its many other constructive ramifications.

It is difficult not to be enthusiastic about the new building. The structure is simple in line, of the colonial period, with a face brick exterior, and cut stone trim. Its location is ideal—fifteen minutes from Lincoln Park, fifteen minutes from the Art Institute, ten minutes from Lake Michigan and the Gold Coast. And its equipment and facilities are of a character and scope to furnish immediate and dependable professional care in obstetrical and pediatric cases.

The building is integral, but divided into three parts—the main building, the kitchen and service wing, and the chapel and recreation rooms wing—and these are flanked by a wing housing the boilers, the laundry, and the garage. There is an oil-heating system, with two 4,000-gallon storage tanks.

Every part of the building is flooded with daylight, and the windows are arranged to assure excellent cross ventilation. There are receiving wards and emergency rooms, with quarters for observation, sequestration, and isolation. There are administration offices, including individual consultation rooms, where the troubled expectant mother will be assured of privacy. There are bright, pleasant living quarters for those awaiting delivery. After her child is born the mother may remain until she has recovered and has completed plans for her future. There are a large number of small wards, all of them bright and cheerful, and each with individual lavatory and toilet facilities. There are a number of private rooms, each with two windows and individual sanitary facilities, which may be had for as little as \$3.50 a day.

One floor is for children from one to five, and includes nurseries, sleeping rooms, etc. The nurseries and play rooms are beautifully tiled in colors. Nursery rhyme characters which children love, form a decorative frieze. Another floor is for infants up to one year, with complementary service and bath rooms. There are quarters for the Sisters of St. Vincent de Paul and for the nurses, as well as for two resident physicians.

The rooms are equipped with Hall metal beds, Zalnite top bed tables, well constructed chairs;

in fact, the furnishings throughout are of the highest standard.

There is a standard laboratory equipped to do complete clinical laboratory work.

The roof has a solarium and an open play space for children, with a wading pool, sand boxes, and other diversions.

The delivery rooms have every modern facility, and there is a special room for Cesarean cases.

The building has a capacity of 500, tentatively apportioned for 100 expectant mothers unable to pay, 100 paying whatever they can, 200 infants and children, and 100 nurses and sisters.

Service facilities adequate to care for capacity occupancy are among the finest in the city. There are enormous kitchens, with windows on three sides and a skylight, the walls and ceilings lined in glazed white tile. The equipment is electrical throughout, and so efficient that only four persons are required to run it. Table and cabinet tops are of monel metal, and steam cookers and ranges are of the latest pattern. There are three departments in the kitchen—the milk, the diet, and the vegetable division, and a service department from which trays are carried by an electric lift, with heating and refrigerating provisions, to the respective floors.

The old policemen like to tell that when they brought their "doorstep" babies to St. Vincent's they looked for the building by its beacon of rows of diapers waving in the breeze. Now the laundry is equipped to wash, sterilize, and dry three thousand diapers a day, in addition to the other laundry work, including infants' wear, linens, uniforms, and many other items. There is an auxiliary laundry in the basement to handle the overflow work, where the soiled things are received direct by chutes from the various floors.

The boiler rooms are equipped with two large boilers, five vacuum pumps, filters and water softeners. There are two 4,000-gallon tanks for hot water. There is ice-making machinery for a cooled filtered water system, for ice cream freezers, and all other purposes.

A school for infant nurses is maintained, giving one year's intensive training in the care and feeding, as well as the dressing and training of infants, with a regular course of lectures by the resident and staff physicians. This training includes full maintenance and qualifies the student for a position as infant nurse. A high school

education is required, as well as character references. There is always a waiting list in this department.

Every baby brought to St. Vincent's comes at once under pediatric supervision. A Wassermann is taken, a Schick is done, nose and throat cultures and vaginal smears are made, and not until satisfactory reports are obtained, is the baby released from quarantine. A detailed daily medical record is kept on each infant, which is read and checked by the attending physicians, who then prescribe corrective diet and treatment in accordance with the case.

For the unfortunate expectant mother and also for the mother who has had her confinement, but who has nowhere to go and is being taken care of at St. Vincent's, occupational therapy is being constructively developed. The women do whatever work they are able, in the laundry, the kitchen, the nurseries, and elsewhere, but they do no hard manual labor, nor any work beyond their physical strength as indicated by their medical condition. Most of these mothers know little about domestic science or other occupations. Classes for instruction in domestic science are organized under competent teachers.

Programs are provided for the patients' entertainment and recreation; singfests, charades, and other diversions being constantly planned, in which they take part. For everything possible is done to maintain a cheerful, optimistic atmosphere, and in cases where self respect has been lost to restore it and develop any latent talent. The future welfare of these mothers is dependent upon this mental hygiene.

St. Vincent's Infant and Maternity Hospital is operated by the Sisters of St. Vincent de Paul. The Sister Superior is Sister Camilla, a registered nurse, who was for many years the Mother Superior of St. Joseph's Hospital, Chicago. The entire staff is thoroughly qualified for the work they do, and the institution is managed with modern efficiency.

Dr. L. Wade Martin is Chief of Obstetrics, and the writer of this article is assisted by two pediatricians, Dr. Jos. Greengard and Dr. Maurice Snyder, who devote a great deal of their time to the development of these babies, many of whom have a very meager start in life. Drs. A. A. Hayden and Edgar Connelly, eye, ear, nose and throat specialists, also pay regular visits to

the institution. Dr. Herbert R. Rattner is the consultant on skin diseases. There are two resident physicians who devote their entire time to the needs of the institution, one on the obstetrical, and the other on the pediatric service.

St. Vincent's has a record of growth and accomplishment over a period of fifty years in its particular field not equalled by any other institution in this locality. And with its new and enlarged facilities it promises to be of even greater service from now on than it has been in the past.

FREQUENCY OF ATYPICAL SURGICAL MASTOIDITIS IN CHILDREN

M. H. COTTLE, M. D.

CHICAGO

Last year I presented before this section a report of two groups of patients with mastoid pathology in which the diagnosis was not made until after death. One group was associated with intestinal intoxication in infants and the other group consisted of children of all ages who did or did not have other disease than the undiagnosed mastoiditis. As aids in studying such cases I suggested the use of paralytic displacement and the electric otoscope—Paracentesis not simple in infants. This paper deals with 53 consecutive clinical and private patients who were operated on for mastoiditis, in whom definite pus, necrosis of bone, and granulation tissue were found.

Those presenting complications and three who died are not included in this analysis. The question raised by the study of these children is "what in them is a typical simple surgical mastoiditis?"

The overwhelming literature on this subject almost forbids further discussion. Dr. G. W. Boot answers this question as follows:

1. Running ear for two weeks or more.
2. Tenderness of mastoid lasting 5 days or more.
3. Fever.
4. Leucocytosis.
5. Sagging of upper posterior canal wall.
6. Loss of post auricular angle.

Dr. C. Schott, Pediatrician, of Chicago, con-

siders the following in estimating a mastoid disease:

1. High septic temperature not affected by drainage which may be profuse, over-profuse, or scant. The fall of the temperature is not extreme in an uncomplicated case.
2. Appreciable sagging of roof of canal with bogginess of sides. Obliteration of all normal landmarks.
3. Tenderness over any portion of mastoid.
4. Rising blood count up to 30,000 or more with lowering of hemoglobin percentage.
5. More or less pain in mastoid or temporal regions radiating anteriorly or posteriorly.
6. Drowsiness regardless of height of temperature.
7. Severe pain on manipulation of ear.
8. Postauricular edema or swelling.
9. Completion of clinical picture in 36 to 48 hours.

It is apparent to every otologist that these two outlines take in a wide variety of cases ranging from simple subperiosteal abscess to severe mastoid disease accompanied by serious systemic symptoms. To what is this variety due? Is it the anatomy of the mastoid? or the pathology? the causative organism? the resistance of the patient? or the presence of another illness just preceding the ear infection or occurring concomitantly? As has been frequently said "the only constant finding in mastoid anatomy is inconstancy." The many variations in the number and structure of the cells, the nature of the bone, the location and patency of the bony sutures, the extent of pneumatization, and the relations with intracranial organs make the consideration of the anatomy of paramount importance. The pathology in our series as mentioned before was grossly similar consisting of more or less pus, necrosis of bone, and granulation tissue. In practically every one of the cultures of the material obtained at the time of operation there was found a variety of *streptococcus*, most frequently *hemolyticus*. Four of our patients had just had measles, two scarlet fever, one diphtheria, the others colds, sore throats, and so-called flu.

I believe that because of all this our series is a group of fairly similar cases. In them the following symptoms were noted:

*Read before Section on Eye, Ear, Nose and Throat, Illinois State Medical Society, May 20, 1930.

1. Tenderness over some part of the mastoid in all except four.

2. Swelling or loss of post auricular fold in all except two definitely and five questionably.

3. Temperature 100° F. in all but nine; below 99° F. in only one.

These three findings persist beyond the first week of illness.

4. In 29 the clinical picture was complete in less than three days; in one in four days.

5. Twenty-five had pain in or about mastoid.

6. Nine had no discharge from the ear at any time. Nine had discharge one week or less; five had stopped discharging previous to the development of external evidence of mastoid involvement.

7. Only nine had sagging of the posterior-superior canal wall.

8. Nine had severe symptoms, as chills and vomiting.

9. Drowsiness in five.

10. Leucocyte count varied from 4,000 to 32,000—mostly between 15,000-20,000.

Our series showed that mastoid tenderness, mastoid swelling, and fever, persisting, are the three symptoms found in nearly every case of uncomplicated mastoid disease. During the period covered by the study there were three children who had this triad and healed spontaneously. In two of these I inserted a needle into the mastoid swelling and felt roughened bone. In the other a physician had made a very small incision into the mass which bled for over a week. I saw a fistula in the cortex while I searched for the bleeding vessel in this exsanguinated girl. In five other children not included in this series the triad of symptoms was treated conservatively with apparently good results but remissions occurred, and mastoid operations were subsequently performed. The one outstanding instance of my inability to reach a conclusion was A. G., age three, whose ears discharged for less than a week. Then within 48 hours she became ill with a septic temperature up to 103° F. There was sagging of the canal walls but no tenderness, no pain, no definite mastoid swelling. Some drowsiness and progressively rising blood count from 15,000-30,000 with gradual lowering of the hemoglobin percentage completed the picture. No findings in other organs. Operation revealed extensive necrosis of bone with pus. Erysipelas

complicated the convalescence but in spite of this there was complete healing in two weeks.

In a boy who had pyemia with abscesses in the shoulder and elbow there suddenly occurred swelling and tenderness about the mastoid tip without any ear discharge. Operation revealed sclerosed bone about the antrum but extensive bone necrosis, pus, and granulation tissue in the tip of the mastoid with exposure of the sigmoid sinus.

Comment:

The clinical picture which is considered the typical indication for doing a simple mastoidectomy occurred in less than 60 per cent. of our patients. The other 40 per cent are then to be considered atypical if this clinical picture is universally accepted. I believe, however, that persistent fever, tenderness, and swelling are the group of symptoms which together call for mastoid operation; and from this standpoint the atypical percentage is decreased to less than 5 per cent.

The anatomical variations commonly known can explain the frequent absence of aural discharge and sagging of the canal walls as well as the infrequency of severe constitutional symptoms.

The patients who do not have at some time during the illness the triad of tenderness, swelling, and fever are the ones which must be considered and evaluated according to the outline suggested by Dr. Schott with especial emphasis on increasing leucocytosis with diminishing hemoglobin and drowsiness regardless of the temperature.

DISCUSSION

Dr. George Woodruff, Joliet: This study of Dr. Cottle's which was entirely limited to children is very interesting, because I think we have all come to believe that in late years there is quite a difference in symptoms of mastoiditis, uncomplicated, in children and adults. I think that fact is much more generally recognized than it used to be. It is also interesting to have side by side the pediatrician's idea of a mastoiditis and the otolaryngologist's idea.

Dr. Cottle's triad which he found most prevalent in these cases was swelling, tenderness and continued rise in temperature. The thing that surprises me is that a relative large percentage of these patients never had any ear discharge that could be determined. As I have not had the opportunity to study as large a number of children as Dr. Cottle has studied, I cannot give you any definite findings, but it is surprising because we have been accustomed to think of nearly all mas-

toiditis following a more or less typical acute otitis media, and we think of a typical otitis media as having a discharge in the middle ear. Of course in some cases the drum is never ruptured.

I think the point of continued rise of temperature is very important in children. Of course in adults we would not expect this so much. Continued rise of temperature in an adult usually means a complication, but in a child it is quite a normal thing, especially in a young child.

Dr. A. A. Hayden, Chicago: If there is any place in the whole field of medicine where there should be no dogmatic statements such as waiting for three or four weeks, or even two weeks, before doing any operative interference, I think it is right in this question. I want to cite a case in point.

A dentist's child, aged three, was brought to St. Joseph's Hospital with a running ear following an acute sore throat. The ear had ruptured one day before the child entered the hospital. He came in with a temperature of 101. On the third day he showed a temperature of 105 and then had a very decided chill and a drop in temperature to somewhere around 100. That would be on the fourth day of the illness. On the third rise of temperature of that sort with the third chill the mastoid was opened and the lateral sinus was opened and the jugular was tied off. I know that that was done very early, but I firmly believe that the early operative interference saved that child's life. For that reason, I do not think waiting for two or three weeks should ever be thought of. I think that each case has to be decided on its own findings.

The case that Dr. Cottle spoke of as having only 4,000 leukocytes comes very close, it seems to me, to the agranulocytic type. We have begun to regard that quite commonly as an affection of the throat, but I see no reason for it at all. I do not know very much about it; I think no one does. I think a leukocyte count of that sort may just as well occur in an affection in the ear as it may in the throat, and I do think that the leukocyte count, and especially or together with Shilling's shift to the left, is a very valuable point.

With regard to the pediatrician's idea side by side with the otolaryngologist's idea as being valuable to have, as Dr. Woodruff has said, I am not so very sure. While Dr. Schott is a marked exception, I believe ears, as a rule, in the hands of pediatricians, are operated on too late rather than too early. Much of the edema of the canal, perhaps some of the edema or the swelling behind, is sometimes due to the medication that is put into the canal with the idea of relieving pain. I do not think one twinge of pain has ever been relieved in an acute otitis media by the instillation of any sort of drops in the canal. It simply muddles the picture of the true anatomy of the drum which is the most valuable sign we have.

Dr. L. Ostrom, Rock Island: We all know that most mastoid involvements in children get well without ever being seen by a doctor at all. Unless special study is made in complications with the aid of the pediatrician

and the laboratory we can not always arrive at accurate conclusions as to what to do.

The peculiar anatomy of the auditory cavity permits pus to burrow in several directions so that incision for its discharge may have to be made in front of the ear as well as behind or usual location.

Dr. Salinger mentioned the value of blood studies, especially of hemoglobin, which is often a more valuable guide than the white blood count.

Report of a case. Boy 7 years old. Three months ago had mild otitis media, with spontaneous perforation, and recovery (from otitis) in 10 days. Four or five days later septic temperature up to 105-106 preceded by chills two or three times a day started up without any apparent cause. When brought to the hospital by Dr. Murrell, ear drums looked normal. No tenderness of mastoid or over jugular. No rigidity. Everything negative, except hemoglobin which was 55 per cent. and blood culture showed non-hemolytic streptococcus. Exploratory paracentesis proved middle ear free of mucus or pus. Mastoidectomy demonstrated a perfectly normal mastoid and antrum. Lateral sinus was exposed about one inch backwards, and low down in towards the jugular bulb. Nothing abnormal found, until a probe was passed toward the bulb, when pus appeared. Iodoform gauze packed down to abscess cavity. Patient was given transfusion (blood from father and Gentian Violet) immediately after operation, also on the third day.

With the aid of Dr. Adler, pediatrician, he was carried through a stormy week, after which he made an uneventful recovery.

In this case the infection had passed through the floor of the middle ear, and formed a perisinus abscess on the jugular bulb.

The intelligent assistance of the pediatrician for the hectic period, when nourishment is refused or not digested, is of equal value as the operation itself for the restoration of these patients to health.

Dr. A. H. Andrews, Chicago: I like to get simple, concise statements that mean much and the best statement I have heard here this afternoon is that the only consistent symptom in mastoid conditions is their inconsistency. I forget which one of the essayists gave us that, but it is good.

There is one phase that I do not think I heard mentioned, and that is those cases in children where the symptoms subside, where the blood count improves, where the pain disappears, where the temperature is running lower, but the patient is getting ready for a chronic discharging ear. There are conditions present which are not showing symptoms which will not recover and the patient will have a chronic discharging ear probably the rest of his life.

There are two symptoms which I should like to mention that ought to be considered. Of course, everybody recognizes the x-ray. Transillumination is a method of examination which is easily made and is of value. The second is the presence of bond debris; when found points toward the necessity of a mastoid operation.

Dr. Harry Pollock, Chicago: There has been a great

deal said with regard to the laboratory and clinical pictures. I want to make this brief statement which holds through all otolaryngological practice and through almost any practice. Those who attended the last meeting of the Chicago Otological Society heard Dr. Billings say it is the clinical picture which counts, and if all laboratory tests, x-ray included, substantiate the clinical findings, then we can depend on our laboratory findings. If they disagree with our clinical findings we can throw them aside and nine times out of ten if the man is a good clinician the clinical symptoms are correct.

Dr. M. H. Cottle, Chicago: I just want to thank all the gentlemen for the discussion, which is the reward of writing a paper.

PREGNANCY IN UTERUS UNICORNIS*

JOHN W. BIRK, M. D., F. A. C. S.

CHICAGO

The failure of the proper fushion embryologically, of the Müllerin ducts from which are formed the vagina, cervix, uterus and tubes, produces an almost endless variety of uterine malformations, varying from uterus didelphys to only a small bud of tissue marking the remnant of a uterus, with absence of vagina, cervix, corpus and tubes. Obviously, if the degree of malformation admits of pregnancy, our possibilities for distocia or rupture are also variable depending upon the type of deformity; whether a pregnancy in a rudimentary horn without a connection with the body of the uterus, or a pregnancy in a uterus didelphys, in which the remaining body and cervix might act as a tumor in front of the presenting part.

DeLee mentions a case of uterus septus in which the fetus was astride the septum.

Recent literature teems with reports of uterine maformation, mostly bicornate. In many, labor seems to deviate but little from the normal and there are probably many more that go through labor unrecognized, or perhaps confused as a fibroid in the fundus. Many would be recognized by more careful study during early pregnancy. It seems logical that at least some cases of superfetation can be explained by pregnancies in uterus bicornic septus. Very little is said in the literature of uterus unicornis because of the difficulties of diagnosis, there being so little change from the normal in early pregnancy. Uterus unicornis is rarely recognized except at laparotomy. The report of the appended case is of con-

siderable interest, the condition having been found at operation after her first pregnancy.

Mrs. J. L., aged 32, presented herself for treatment for severe dysmenorrhea, which had been present since menstruation was established at the age of fourteen years. She was always confined to bed for three days. The pain was always more severe on the right side. The family history was negative. The personal history revealed that five years previously, patient had an Alexander operation done because of retroversion, hoping this would cure the dysmenorrhea. There was no benefit derived. Following the operation menstruations were lengthened from four to seven days and clots were passed. She had had one pregnancy eighteen months ago; a breech presentation with a prolapsed cord and a dead fetus which weighed six pounds. Convalescence was normal, but her dysmenorrhea promptly recurred with no change in the character of the pain. The tonsils had been removed some years ago. She had a simple goiter which had not changed in size and gave her no discomfort. The remainder of her history was essentially negative so far as it pertained to her illness: heart and lungs negative; kidney function normal; a slight simple anemia, Hemoglobin 70%, Leucocytes, 5,800, Erythrocytes 4,990,000; blood pressure 130/80. She was quite nervous and exhausted, constantly dreading her next menstruation, which she knew would be severe enough to demand some form of an opiate.

Vaginal examination showed the vagina normal; slight vaginal discharge; cervix normal, no ulceration and well back; uterus normal in size, anteverted, held well forward, movable, no change in shape noted; left broad ligament free; ovary on this side not palpable; right side tender, ovary size of large walnut and tender. A diagnosis of cystic ovary was made, laparotomy advised and accepted.

Operation. Abdomen opened in median line, uterus examined. There was complete absence of the right tube. The fundus on the right side corresponding to the tube insertion contained a fibroid about one and one-half inches in diameter, which made the uterus symmetrical. This was shelled out. There was no opening into the cavity of the uterus. Uterine wound closed with cat gut. The uterus then had the typical curved appearance of a uterus unicornis with tube and

*From Lake View Hospital.

ovary on the left side normal. Right ovary, cystic about the size of a large walnut, was removed and an incidental appendectomy done. She made an uneventful recovery. Following operation menstruation was painless and has remained so since.

She became pregnant seven months after her laparotomy and delivered spontaneously a breech at term, breech engaged and was delivered left sacro-anterior. Eighteen months later she became pregnant the third time, again delivering spontaneously, a breech position, again left sacro-anterior. The breech presentations are probably explained by the deformed uterus. Because of the deformed fundus there is more room in the lower segment.

Caswell presents a pregnancy in the remaining horn of a uterus didelphys, after partial hysterectomy for torsion, also presenting the breech.

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SURGERY OF THYROID*

WILBUR L. BOWEN, M. D.

PEORIA, ILL.

Introduction and History. Surgery of the thyroid has advanced rapidly in recent years, and a great deal has been written concerning this subject. It is interesting to note that Paul of Aegina, a Greek surgeon, who practiced in Alexandria during the first part of the seventh century, A. D., distinguished between the struma of the anterior portion of the neck or goiter, and that of the lateral part of the neck or adenitis. His operation for struma (goiter) is very interesting. "We also lift up the larger struma, transfix it with hooks and at the same time the excised portions are freed from the body which surrounds them on all sides, being constantly mindful that neither the arteries which are called the carotids, nor the recurrent nerves are injured." Apparently the danger of injury to the recurrent nerves was realized at that early date.

The next glimpse of thyroid surgery is obtained from the writings of Roger of Parma, an

Italian surgeon, who practiced in the latter part of the twelfth and first part of the thirteenth century. Roger followed the teachings of Paul of Aegina in the operative treatment of goiter, using several different methods of resection. He differentiated goiter from cervical adenitis only in a rough way, but he made a change in the treatment of goiter in that he used the ashes of sea sponges as a medicine (iodine) for the condition. It is also claimed that the Chinese used iodine in the treatment of goiter, either before or in the early part of the Christian era.

According to the historian, it remained for Fabricus, an Italian surgeon practicing in the sixteenth century, to differentiate goiter definitely from other tumors of the neck. This statement, however, does not seem to be warranted by the facts, as Fabricus himself does not make any such claim. "In the neck, four kinds of disease are treated by manual operations, quinsy, goiter, enlarged glands, and wry-neck. We will speak of all commencing with goiter. This tumor, according to Celsus and Paul of Aegina, occurs in the neck between the skin and the trachea, the Greeks call it bronchocele." Fabricus describes the condition in more detail and one gets the idea that he is talking of a cystic adenoma. There is no doubt here that Fabricus is referring to goiter, as he noted it frequently in the Swiss Alps. He attributed the condition to some impurities, or lack of substances, in the water supply of this particular people.*

Parry in 1825, Graves in 1836, and Basedow in 1840 are the earliest writers to describe exophthalmic goiter. The development of the surgical treatment of goiter has been aided materially in this country by the efforts of Halsted, C. H. Mayo, Crile, and others, and in Europe by Kocher, and de Quervain. The research work of Kendall and Marine has added to our knowledge of the chemistry and physiology of the disease. The differential diagnosis of adenoma with hyperthyroidism, from exophthalmic goiter, by Plummer, and his pre-operative treatment of exophthalmic goiter with iodine has reduced the operative mortality. The work of these men and many others has brought us down step by step to our present method of treating goiters.

Diagnosis. It is not always easy to make an

*Read before Surgical Section, Illinois State Medical Society, at Joliet, May 21, 1930.

*Reference: Old Masterpieces in Surgery, Alfred Brown, M. D.

early diagnosis. We must first determine that the patient's disability is due to one or more of the varied manifestations of goiter, for the symptoms of toxic goiter may closely simulate those of other conditions. The history itself is quite often indicative. The physical findings clear up the picture quite a little more, and finally one or more metabolic rates should make our diagnosis complete. Too much emphasis should not be placed on any one of these. For instance, it has been our observation that patients may have a suggestive history, and physical findings, and yet have what is generally termed a normal metabolic rate. This same patient returning at a later date may show more definite findings and a metabolic rate higher than before.

The diagnosis of hyperthyroidism having been made, we should next determine the type of hyperthyroidism, the degree of immediate toxicity, and the general systemic secondary involvement. These facts together with personal experience lead to the proper pre-operative treatment and help to decide when and how to operate. The classification we use is as follows:

1. Adolescent goiter (colloid).
2. Adult colloid or lobulated colloid goiter. (With or without hyperthyroidism.)
3. Adenomatous goiter.
 - A. With hyperthyroidism.
 - B. Without hyperthyroidism.
4. Exophthalmic goiter.
5. Mixed goiter.
6. Thyroiditis.
 - A. Tubercular.
 - B. Syphilitic.
 - C. Acute septic or pyogenic.
 - D. Woody thyroiditis.
7. Malignancy of the thyroid gland.

The first we do not consider surgical and this can be treated by thyroxin or iodine. The adult colloid goiter is treated as an adenomatous goiter. It has been our experience that adult colloid goiter, especially the lobulated type, does not respond very satisfactorily to iodine or thyroxin.

In benign cases, where colloid or adenomatous, we do not urge operation, unless the patient shows signs of obstructive dyspnea or has a substernal goiter. For the remaining conditions we advise operations.

Pre-operative Treatment. All exophthalmic and mixed goiters receive iodine prior to opera-

tion. Adenomatous or colloid goiters do not receive iodine unless there is a suspicion of the mixed type. The operative treatment is determined by the type of goiter, together with the secondary systemic involvement. We have not found it necessary to use digitalis, regardless of the condition of the heart; in fact, we delay operation on patients who have had digitalis until its effect wears off. Goiter patients are not required to remain in bed unless there is marked cardiac involvement. There are few set rules relative to the time the patient should be operated on. We feel it is essential to win his confidence and to endow him with confidence in himself. The weight, blood pressure, and strength are points of interest. The operation is freely discussed with the patient and the time set when we feel that he has reached the maximum point of improvement.

Anesthesia. The anesthetist should be one trained in goiter surgery; he pays close attention to the pulse, respirations, and blood pressure, and reports to the surgeon any significant rise, sudden fall, or change in quality in the pulse, as well as any respiratory irregularity. The anesthetic we have found best suited to our use is the local infiltration of novocaine and, when necessary, the additional administration of gas; thus the patient can be quickly aroused. The ability of the patient to speak serves as a check on any possible interference with the recurrent nerves.

Technique of Operation. The technique employed in the average case is very simple. The usual collar incision is made, being located where possible in a crease of the neck. The dissection is carried down to the ribbon muscles and the upper and lower skin flaps, including the platysmal muscle, are dissected up. The ribbon muscles are then separated in the mid line, and by extending the incision between these muscles, it will seldom be necessary to cut across them, however, these muscles should be cut across if necessary for proper exposure. The suspensory ligaments which are usually well defined are then clamped and cut. This procedure, which as far as I know was first advocated by Pemberton, aids materially in mobilizing the gland. We do not attempt to ligate the superior and inferior thyroid arteries individually, as we do not feel that we should stop all of the blood supply in doing

a partial resection of the thyroid, any more than we would ligate the superior mesentery artery in doing a partial resection of the small intestine. In other words, we believe that the blood supply should be stopped only to that portion of the gland that is to be resected. The margins of the capsule are then clamped with Ochsner forceps completely encircling one lobe. We believe that resection of one lobe at a time is the safest procedure.

There is usually a line of demarkation on one or the other sides of the isthmus, and the isthmus is removed with the lobe on the side where there is no line of demarkation. The capsule is then excised anterior to the point of ligation, and the resection of the lobe is carried out within the capsule by sharp knife dissection, clamping before we cut. The resection is usually begun medially and superiorly and carried laterally and inferiorly. The resection when carried out in this way has several marked advantages: (1) we are better able to judge the amount of gland removed, (2) we do not expose the trachea, (3) the gland is mobilized with first part of the resection. (4) injury to the parathyroid gland and to the recurrent nerve is almost eliminated by this type of resection, and (5) the partial resection of one lobe at a time leaves us free to continue or to stop the operation, depending on the condition of the patient. Hemostasis is secured in the edges of the capsule with a continuous interlocking double thread of plain catgut, and then the edges of the capsule are sutured together. It is well to insert the needle parallel to the long axis of the neck at the inferior pole and also very superficially in the portion of the capsule next to the trachea.

It was formerly our custom to insert a drain in the incision, but now we seldom do this, and we find that the post-operative reaction is about the same. At times a little blister will appear in the incision which has to be opened, but the cosmetic result is usually better when the incision is not drained. All patients should be thoroughly explored before closing the incision, as we feel that quite often recurrence may be attributed to a substernal or retro-tracheal portion which was overlooked at the time of the first operation. All patients are made to cough and strain before closing the wound as a check on the possibility of a post-operative hemorrhage. The

skin is closed with a subcuticular plain catgut suture.

Modification of the Usual Technique. We have not found it necessary to do a preliminary ligation for over five years. We still do a partial lobectomy when the condition of the patient does not warrant a complete operation. The second lobe is removed from a few days to three months later, depending on the reaction and improvement of the patient. We still at times leave the incision open and pack, and feel that in spite of considerable criticism that the results justify this procedure. If the recurrent nerve has apparently been damaged by resection of the first lobe, we feel that it is safer not to complete the operation at this time.

Sub-sternal or intra-thoracic goiter, if present, is usually found attached to the isthmus or medial portion of one of the lobes. The delivery of a sub-sternal goiter is aided materially by mobilization of the gland, as before described, by removing the central portion of the tumor, or by puncturing any cyst that may be present. Care should be taken not to use too much force in delivering the tumor, as this may lead to hemorrhage which is hard to control. On rare occasions we find it necessary to remove the upper portion of the sternum, and we think this is better than splitting the sternum. Where the gland extends far around the neck, we always cut the ribbon muscles for better exposure.

Thyroiditis. Acute suppurative thyroiditis is treated as an abscess, and surgical drainage is instituted. Patients suffering from nonsuppurative thyroiditis usually do not consult a physician during the acute stage, but only when they become hypothyroid, or begin to show signs of myxedema. A patient with woody thyroiditis will usually get well if only a small portion of the mass is removed. Tuberculous thyroiditis should be subjected to thyroidectomy, removing the major portion of the diseased gland without drainage, and the general resistance should be improved along general lines post-operatively. Every patient who has a positive Wassermann or Kahn and a tumor of the thyroid does not necessarily have syphilitic thyroiditis, though he may. For this reason we treat all such patients for syphilis first, and if not improved, operate and then continue treatment for syphilis.

Malignancy of the thyroid is usually rather

far advanced when it comes to the surgeon. As these patients are rarely hyperthyroid, this may be some excuse for their delay in obtaining treatment. The surgical treatment is that of malignancy anywhere else in the body.

Post-Operative Treatment. All of our patients are placed in a semi-erect position following operation and kept sitting up for two or three days. Iodine is given post-operatively to all exophthalmic and mixed goiters. Morphin is given when necessary for the first forty-eight hours and visiting is restricted. Proctodysis is started immediately on the return to bed. If the patient is distressed by a small amount of mucous in the upper respiratory passages, steam inhalations of tincture of benzoine are used, and should there be an excessive amount of mucous Haines and Boothby have recently advised oxygen inhalations. Fluid should be given by mouth and nourishment started just as soon as possible. We do not find it necessary to use ice caps on the head or heart. The dressings are changed daily and if the patient complains of the wound feeling stiff we use hot boracic acid dressings at two-hour intervals. The post-operative reaction is usually over by the fifth day and the patient is then allowed to be out of bed. If a drain has been used, it is removed on the third day and hot dressings continued until the fifth day. The average patient is discharged from the hospital at the end of a week and returns to the office for dressings until the wound is completely healed.

POST-OPERATIVE COMPLICATIONS AND THEIR TREATMENT

Post-Operative Crisis. The marked post-operative reaction or crisis that was once so frequent has practically disappeared with the use of iodine; should it occur, however, it is best treated with forced fluids and iodine, while keeping the patient quiet with morphin.

Shock. On rare occasions a patient who has been hyperthyroid develops post-operatively a shock-like condition due apparently to hypothyroidism. The pulse is at first slow and weak, the skin cold and moist, and the patient remains in a semi-conscious state. The usual treatment of shock should be instituted and we also use hypodermic injections of thyroxin to good advantage.

Hemorrhage. Hemorrhage, if it occurs, is

usually on the first day and may be detected by choking, cyanosis, rapid, weak pulse, and a tense and discolored swelling of the neck. No time should be lost in opening the wound and expelling the clot, and if the bleeding point can not be found or the patient's condition is bad, the wound should be packed. By using the technique described above, we have succeeded in avoiding hemorrhage in all our patients.

Paralysis of the Recurrent Nerve. Paralysis of the recurrent nerve is a very serious complication and we make it a rule to have the vocal cords examined before and after the operation when at all suspicious that they are damaged. When one cord has been injured, we feel it is safer to delay removing the second lobe, and unless the nerve has been badly damaged, it usually regains its function within three months. The prognosis in bilateral abductor paralysis is serious. A tracheotomy tube must be used, and even then the patient is subject to fits of choking. If he does not die on the table, he may die shortly afterwards of aspiration pneumonia. I am afraid that quite a few anesthetists have been blamed for the death of the patient, when this has been the causative factor.

Collapse of the Trachea. This condition though rare is very serious. It occurs in patients with large adenomatous goiters of long standing, in which the cartilage has been softened, or destroyed. The trachea may collapse during the operation when the tumor is released, or two or three hours afterwards. Tracheotomy should be performed immediately and a long tracheal inflation catheter inserted. Hertzur has suggested the suture of the walls of the trachea to the surrounding tissues, as a preventive measure in a case where this may be expected to occur.

Tetany. Tetany may be temporary or permanent. If temporary, it is usually due to traumatic edema, and is really controlled by the administration of calcium for a short time. When permanent, the tetany is due to the destruction of para-thyroid tissue and is a very serious complication. It requires the daily medication of calcium, thyroid, and para-thyroid for the remainder of the patient's life. It has been said that a patient may die from tetany within three or four days after operation.

Other Complications. Numerous other complications may be mentioned, such as pneumonia,

infection of the wound, psychosis, etc., but to go into a full discussion of these would make this paper too long. May I say in closing that thyroid surgery depends principally on a thorough study of the individual patient and that the complications are more easily prevented than controlled after operation.

DISCUSSION

Dr. Frank Mason, Danville: There are a few points in this excellent paper that I desire to speak of. It seems to me that his classification is very good as is also his technic of the operation. He covered very thoroughly all the different complications that may be found in thyroid operations. It seems to me that the main thing to be considered in thyroid surgery is the general condition of the patient; first, the condition of the heart and secondly, the general systemic condition. I was very forcibly impressed by a remark the Doctor made concerning not giving too much importance to any one symptom; for instance, he spoke of the basal metabolism test and that when your patient first comes in the rate would be lower, or possibly higher than should be, and would change from time to time. I find that that is a fact. I do not think we should pay too much attention to basal metabolism in our operations. For instance, I recall one case I had about a year ago whose basal metabolism rate was 87+ and the blood pressure 298. Under those circumstances it was absolutely contrary to all rules of surgery to attempt operation in that case. We attempted to bring down his blood pressure, but could never get it below 180. The basal metabolism rate never went below +60. What were we to do in that case? His heart was quite rapid, though it never went above 130, and usually was about 100. He seemed to be in good condition. I resolved when I got his blood pressure down to 180 and his basal metabolism to +60 to do something for him. I did not feel that it was proper to attempt removal of the lobes of the thyroid. We had a mixed condition with considerable exophthalmos. A blood pressure that high is rather unusual in exophthalmic goiter. Under ethylene I tied off the superior poles at one operation and the man made a very good recovery. I did this thinking that possibly in the near future I would remove one or a portion of both lobes. In about three months the man went back to work. The gland has receded in size and the blood pressure has gone down to 140. His basal metabolism rate is but little plus. Occasionally I have to give this man a little iodine to control some erratic symptoms but the gland enlargement has almost entirely disappeared.

It is my feeling that we should not pay so much attention to basal metabolism or even high blood pressure if we feel that the patient's arteries are in good condition and the heart is not very badly damaged.

One point about the heart. The Doctor made the remark that he did not give digitalis, and if a patient was brought to him who was under the influence of digitalis, he would wait until the patient was free from the

influence of digitalis before operating. I do not like to give digitalis unless we have auricular fibrillation and then I do give it to a certain extent. Sometimes I will control it with quinidin but usually not until after operation.

There are only two things to be considered in goiter heart, one is the thyrotoxic heart and the other is the mechanical pressure heart. After all, it is the thyrotoxicosis that has to do with the heart. Whether it be dilatation of the right ventricle or whether it is enlargement of the heart from right to left it is the thyrotoxicosis. How are you going to manage that? If you will treat them with iodine and with nerve sedatives you will get the patient in condition for operation. How do you do that? I give iodine more thoroughly than you notice in the literature. Then I give sedatives. I give iodine, together with Forchheimer's treatment, and have the patient report to the office every two weeks and watch the results. In about 90 per cent. of the cases, although you may think that the heart is seriously damaged, within a few weeks it will surprise you to see how the patient's pulse will come down, the tremor subside, and you feel that you can do the operation.

Dr. William Fuller, Chicago: Dr. Bowen's paper shows that he has hewn closely to the latest procedures in the treatment of thyroid disease. If I understood him correctly, he does not have a set way of dealing with thyroid gland disease, but recognizes clearly the necessity of dealing with each and every case strictly on its own merits. I do not suppose it makes much difference from which angle one approaches this subject for discussion, for all along the line, there are yet many mooted questions, interpreted differently by medical minds. The impression prevails in the mind of some that the subject is in a somewhat chaotic state, and that but little progress is being made.

We have but to compare the present status of thyroid gland therapy and disease with that of a few years ago, to be convinced that progress is being, and has been made. It has been a little more than fifty years since the greatest surgeon of his day said that no matter how large the thyroid gland might get to be, nor how much discomfort it might produce, no sane or sensible surgeon would ever attempt its removal. This is a statement made by Samuel D. Gross in about the year 1866. The thyroid gland is safely removed in every hamlet and in every hospital in the country today for any of its diseases, by all surgeons.

I should like to bring out one point in this discussion which has given me concern for years, and that is the end results in the surgery of the thyroid, or the mortality rate. It has seemed strange how two men of about equal ability and skill, have results in their therapeutic measures applied to diseases of the thyroid gland, that are so widely different. I have often wondered whether the reporter places all his cards on the table when getting out the reports showing such low death rates, even as low as one-half of one per cent., and if this is true, and we might extract from the sleeve of the one holding the missing card, headway might

further be made. Let us for example then compare the work of the great surgeon operating in a big clinic, with that of another surgeon, of equal skill, operating in a smaller clinic. What do we see? The former's reputation is world-wide; it is known to every man, woman and child in the country; and those with real, as well as imaginary, goiters, find their way *early* to these centers, and in so doing, of necessity have among them a proportionately or comparatively small number of bad risk cases; and it is from these cases and these alone that mortality rates must be figured. Not only will there be fewer cases of the complicated ones, like cardiac instability cases, and those with degenerative changes in other organs, among the early comers, and in consequence a lowered mortality, but there will likely be a goodly number of this group of early cases, subjected to surgery, that would yield to measures less radical than surgery.

The operator in the small clinic has a reputation not so widespread, and his clinic is not so well known. People with thyroid gland disease find their way to this institution and surgeon much *later* than do those going to the other clinic. As a result of their coming later for relief, they have among them a comparatively *large* number of the bad risk cases, above described, which spells a higher death rate than is recorded in the bigger clinic. This in all fairness explains the difference in the mortality figures of the operative work in the two instances. I believe it will hold good throughout in thyroid surgery everywhere.

Another point based on fallacy and misleading is the classification of diseases of the thyroid gland. I think it impossible to work out any classification that is helpful. The infinite number of conditions that enter into the formation or summation of a disease as complicated as exophthalmic goiter, and coupled with the many peculiarities in the patient himself, a rational classification of such a disease, seems utterly beyond belief.

If by the recognition of a few inherent peculiarities or characteristics, such as the geologist employs or recognizes in classifying the rocks, or the botanist his plants, classifying diseases would be a much more simple matter. I cannot help but believe therefore that the classifications we meet with in the literature are but little more than expressions of personal opinions of the writers.

We may well consider I think whether or not we are dealing with diseases that are different in their histology and clinical manifestations involving the thyroid gland, than we did fifty years ago. It does not seem strange that Graves' disease, hyperthyroidism, or exophthalmic goiter, describe exactly the same pathology they once did. Williamson of England has shown lately that the finer anatomy or structure of the thyroid gland has changed. Either this or he is seeing the same structure in a new light. His "sinusoids" with their cylinders of epithelium, directing the colloid which they secrete in one direction for immediate use, while the remainder of this secretion is sent in another direction for later use, reads like a fairy story. Whether he is describing an old thing in a new light, or a new thing in a correct

one, I cannot say. But as many diseases now familiar to the older medical men in practice have undergone changes, till many of them might be assigned to another category at present, it is not impossible that the terminology employed in describing thyroid gland disease, may also change as time goes on.

In conclusion we desire to say that the statements here made are personal ones, and represent the facts as we see them. We gladly follow the lead of authority, and concede all honor to the men whose work have placed the whole subject of thyroid disease so far in advance of what it was fifty years ago. Our exceptions to or criticisms of what the leaders say is an inherent right, as mistaken as our statements may be. We do not desire to have our minds on this subject become wholly ossified by blindly accepting everything that is said, for we feel that it is human to err, as we feel certain that even the great leaders in medicine may do.

When we come to deal with thyroid cases along the lines suggested by the essayist, and recognize every case as wholly unlike any before seen, and that is likely unlike any that will later be seen, then, and not till then, will the best goiter work be done.

Dr. Wilbur L. Bowen, Peoria (closing the discussion): Relative to the basal metabolic rate, we feel that it is a very important diagnostic agent in our thyroid work. We feel that one or two or three are often quite necessary. I think it is like any other laboratory technic subject to error, but it is a very important factor.

We feel that each thyroid case is an individual case. We do try to work on that one idea that the patient is an individual. Every one should recognize that there are certain types of individuals regardless of disease, and that each case must be treated accordingly.

Relative to the classification, I realize that everybody has his own classification more or less and we have used this one because it has worked best with us. I think it would be a very good idea if the surgeons who work in thyroid surgery could work up a classification that everybody could use. I might say that we still feel, and I think there are others, that feel that there is such a thing as a definite type of syndrome that we call exophthalmic goiter. I will say that since I have been in Illinois that these cases are not as frequent as elsewhere. In Illinois it is my own personal experience in our particular clinic that the goiters are mostly what we call the mixed type. We mean the patient who has a large adenomatous goiter for years and all of a sudden superimposed upon that is an acute syndrome which we recognize as the exophthalmic syndrome. We call this the mixed goiter. We recognize this as the most difficult type to handle because we do not get a result with iodine that we get in the typical exophthalmic goiter but it is a little better than is expected in the adenomatous type. We get excellent results in the exophthalmic goiter with iodine. In the adenomatous goiter there have been certain cases that seemingly have been made worse and others that have not improved on iodine.

Relative to iodine therapy there is one other feature

I would like to mention, that is the question of treating a patient with iodine preliminary to thyroidectomy. We recognize that the iodine itself does not continue its effect. We have quite a number of patients that have been treated with iodine outside. These go into a condition that is somewhat of a mixed type, and what Dr. Plummer and Dr. Pemberton would call the organization type in which the gland does not react as well to iodine as it would in acute cases which we put on iodine.

As to the early cases, as Dr. Fuller said if we get the exophthalmic or any other type early, our mortality is going to be lower. The same applies to ulcer of the stomach or any other surgical case. The mortality is much lower with the use of lobectomy and iodine and studying our cases closely, than formerly when we used ligation. Doing one side first and being able to stop and not doing the other side helps to reduce the mortality.

There is another phase which I did not stress, that is morbidity. In the cases that are early and are in good condition we get our most beautiful results, and yet in those same cases we get more frequent recurrences than in those cases which are far advanced. Another thing about that, in a patient who has exophthalmic goiter of long duration with marked cardiac involvement, high blood pressure and the various syndromes, we are not going to get the result we would have gotten early, although the patient is very much more improved after thyroidectomy than before. It behooves us to study our cases and get them early. I am not advising operating on every patient who has a suspicion of a goiter. I do think it is a good idea to keep these cases under our fingers where we can check them every two or three months.

In closing I would like to say that each case is an individual case. There is no doubt about that. I think our work has improved. In the last few years the mortality in goiter has dropped tremendously. Two years ago it was around two and one-half per cent.

A FEW PRINCIPLES OF AMPUTATION*

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CHICAGO

My purpose in presenting this paper is not to reveal any new developments in the field of amputation, but merely to review the present status of the subject. A concise perusal of the literature will show that amputation is the oldest surgical ordeal ever undertaken. To substantiate this it may be said that oriental museums still display perfect bony stumps and a variety of silver and gold orthopedic armamentaria with which surgeons of that time amputated

limbs. Furthermore the terminal stumps of such osteotomies as performed prior to Lister's era convince the observer that some of the early amputations escaped the inevitable infection so commonly seen prior to Lister's epochal developments. From time immemorial amputations have been looked upon as formidable major operations. The surgeon whose skill enabled him to remove a limb in thirty seconds commanded the respect of the profession, and was seriously recognized as a finished practitioner. Ambrose Pare, who introduced the first material for the ligation of vessels in amputations, was one of the early workers in this field who attained considerable celerity and skill. Manual dexterity in the art of amputation advanced so rapidly that in many cases the function of the limb was sacrificed for a speedy removal of the member.

An examination of the literature shows that the World War taught us to respect function of the limb rather than speed. Cases of gunshot wounds in which an amputation was the only alternative received better functional and useful stumps, after due consideration of its most advantageous level of sectioning, than did those whose limbs were hastily severed following the trauma. The author has had the privilege of following up the case of a young man who entered the hospital with an extensive macerated injury about the lower third of the right leg, and who was immediately placed on the operating table and an amputation performed without any form of narcosis. Unfortunately, the patient, up to the present writing, has been the victim of two additional amputations and one blood transfusion. The last operation necessitated the removal of the middle third of the femur. My personal feelings toward this case are that a more conservative pre-operative treatment, such as combating the shock, and a higher amputation well above the traumatized tissues, might have obviated the two additional amputations.

Indications for Amputation. No set rule can be applied or promulgated as to when an amputation becomes imperative. Each individual case presents an array of surgical and anatomical considerations, and it therefore becomes necessary to base its operability upon the problems which the particular situation presents. A few guiding indications as to the necessity of amputation may be presented as follows:

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1. The aim in any amputation is chiefly to save life and provide for a suitable artificial support.
2. Compound fracture and dislocation commonly necessitate amputation. Especially so where there is much comminution or destruction of bone in the lower extremity.
3. Amputation is always imperative when there is a great laceration or mangling of soft tissues, with extensive loss of skin and extensive comminution of bone, together with rupture of main vessel to the extremity. Compound fracture about the knee joint may often call for an amputation.

The author well recalls a case admitted to the hospital on the service of a colleague, in which the victim received a crushing injury about the knee joint, fracturing the epicondylar region of the femur and rupturing the popliteal artery. Amputation of the limb at its middle third was imperative on account of ensuing gangrene following irreparable damage to popliteal artery.

4. Avulsion of an extremity, in whole or in part, demands amputation at a higher level.
5. Lacerated and contused wounds with extensive comminution of bone (as in gunshot wounds) may demand amputation.
6. Traumatic popliteal and axillary aneurism, which cannot be resected and properly anastomosed, may necessitate amputation.
7. Gangrene of extremities from such causes as:
 1. Raynaud's disease.
 2. Thrombo-angiitis obliterans.
 3. Diabetic gangrene.
 4. Arteriosclerotic gangrene or senile type.

These causes all demand, sooner or later, an amputation high up above the popliteal vessel, or a Gritti-Stokes operation.

8. Destructive diseases of bone and joints such as cancer, sarcoma, teratoma and Charcot joints demand amputation.
9. Deformities, such as severe club foot (Wilson).

Contraindications. The only contraindications, which most surgeons and orthopedists will undoubtedly agree, are shock following traumatic injuries, advanced secondary anemia, and an in-

fectured limb with no perceptible line of demarcation as to the extent of the infection.

LEVEL OF GREATEST FUNCTIONAL VALUE OF AMPUTATION

(a) Amputation involving the Upper Extremity. Disarticulation of phalanx in the hand should be avoided as much as possible because of the unsightly bulbous stump produced. Unlike the foot, the hand should command careful consideration prior to amputation. With the sacrifice of one or more phalanges, one may seriously impair the functional value of the hand in such a manner as to greatly interfere with the patient's pursuit of occupation. Whenever possible, in finger or hand amputation, a long palmar flap and short dorsal is desirable. The palmar flap with its fibrous fascia and hypertrophied skin, furnishes a very vascular and less sensitive stump protection because of its adaptation to pressure.

Disarticulation of wrist joint is unsatisfactory because it leaves a very bulbous, osseous stump with insufficient soft tissue protection. Amputation of the lower third of the forearm is not desirable because, this region being largely tendinous, its musculocutaneous flaps provide an unsuitable stump. Its blood supply is inadequate; its flap may become extremely cyanotic, painful, and trophic ulcers may complicate to such a degree as to necessitate re-amputation.

Junction of the lower and middle thirds become the site of choice in forearm amputation from the standpoint of prosthesis and maximum functional value. The abundance of soft tissue, blood supply and leverage of stump at this segment constitutes ideal site of amputation. No amputation should be performed above the insertion of the biceps tendons and elbow joints; this stump being very difficult to fit and causes displacement of limb bucket when the elbow is flexed. Disarticulation of the elbow is very difficult to fit and should be avoided.

The most useful arm amputation is immediately above the condyles of humerus. Any point between the supra-condylar region and within three inches of the shoulder joint will result in the preservation of the highest functional value of the limb. Efforts should be made to save as much of the humeral shaft as possible, for, it being a short bone, the upper segment is not available to a stump lever. Should one find

indications to amputate higher than three inches from the joint, it is imperative to leave the head of the humerus in situ to retain the normal anatomical configuration of the shoulder joint. Since no direct pressure is exerted to terminal stump of upper extremity, it is advantageous to make either anterior-posterior or medio-lateral flaps of equal length.

(b) *Amputation Involving the Lower Extremity.* It is unsound surgery to leave a single toe when the others are completely amputated. This rule is applicable to the great toe as well as the lesser toes. The presence of a single toe may occasionally incapacitate the locomotive function by injuries to the metatarsal phalangeal joint as a result of stepping on a stone or edge of curb. The advantages gained by the presence of any one toe is offset by the deformity and disability which ensues. Surgery of great toe commands conservative treatment as it represents one of the tripods of the foot, and the anterior portion of the transverse arch.

Lisfranc's or Hays' amputation, both of which are tarsometatarsal disarticulation, render the most useful stump in the foot. This is especially true when the function of the flexor and extensor groups of muscles has been retained. Where an unbalance of such function has been permitted to prevail by virtue of unilateral contracture of one group of muscles, deformity of the foot is likely to occur. The Chopart, which is the mediotarsal disarticulation, does not make a good stump on account of the tendency of contracture of flexor group of muscles, with subsequent pes equinus deformity and trophic ulcerations on the stump. The Pirogoff, which is an osteo-plastic operation, has the drawback of non-union between the os calcis and the fibula-tibia, and of immense difficulty encountered in fitting with an artificial foot. Wilson states that "the Lisfranc is the only partial foot amputation that should be performed." Symes' operation which consists of resection of both malleoli, affords another excellent weight-bearing stump which cannot be surpassed by any other type of foot amputation. As this operation removes only the foot, it leaves a stump of maximum leverage power, which enables the patient to perambulate about his room without any artificial appliances. The extreme bulbosity in fitting the stump is the only feature of disadvantage. A long plantar and short dorsal flap is imperative to secure

a firm, non-sensitive stump in foot amputation.

Amputation of the lower third of the leg is not considered to be a sound surgical judgment from the standpoint of fitting artificial appliances. The operation leaves a very long stump with very little power of leverage, and therefore should be avoided whenever possible.

Proximal to the Syme, the optimum level for amputation of the lower leg is through the middle third of the leg, or from seven to eight inches below the knee. The traditional "site of election," four inches below the knee, is now obsolete. With the modern development of artificial limbs, a seven to eight inch stump augments the locomotive capacity almost one hundred per cent. better than the old peg leg with the weight borne on the flexed knee.

(c) *Amputation at Junction of Upper and Middle Third. Skin Flaps:* Generally speaking, what applies to the lower leg, may apply to all other amputations. The lower extremity being a weight-bearing stump, it is of paramount importance that the scar be placed where the least pressure will be exerted. Long anterior and short posterior flaps will, in majority of cases, place the scar on the posterior distal portion of the stump. While this rule pertains to the lower extremity, it is not applicable to the upper extremity. In the latter, the musculocutaneous flaps should be of equal lengths in the antero-posterior plane, except the hand. Here the palmar flap is more desirable.

Fascial Flap: Just as the peritoneum is regarded as being a friend of the surgeon in virulent infections, in a similar manner the fascia assumes the same role to the orthopaedist when all the soft tissues have disappeared from the stump. Anatomically, the fascia is the most resistant structure of any soft tissue in the body. It is capable of enduring great pressure and abuses without suffering much disintegration. Its tendency for contracture is nil; whereas muscles may be retracted in sixty days following amputation. With such qualities which the fascia possesses, every amputated stump should be amply covered with fascial tissue. If abundant fascia has been utilized in covering the muscles and ligaments of the stump, no post-operative fear should be anticipated concerning contraction of muscles and subsequent deprivation of the soft tissues of the bony stumps. In dissecting the flaps, it must be remembered that the

posterior fascial flap is made long enough to adequately cover the entire stump.

Muscle Flap: The muscles are cut four or five centimeters distal to point of bone section and separated from bones. All blood vessels are firmly ligated.

Nerves: Must be severed two inches higher than the muscles. In order to prevent neuromata formation, 95 per cent. alcohol is routinely injected below neural sheath. There are five nerves at this level, which are as follows: (1) internal saphenous nerve, (2) posterior tibial, (3) sural nerve between subcutaneous fat and fascia, (4) peroneal communis, and (5) anterior tibial.

Bones: The fibula and tibia should be freed from periosteum at the site of section and sawed across. The fibula is to be severed one-half inch shorter than the tibia, all sharp spicules of bone carefully removed. The periosteum is denuded from the bones for a distance of one-quarter inch to augment perfect contour and prevent development of bony spurs. Medullary canal is curetted for similar reasons. The tibial crest is beveled from two to three cm. to avoid abnormal protrusion beneath the skin.

Closure of Stump: The muscles are grouped about the bone and a purse-string suture of chromic cat gut applied to maintain the muscles firmly about the bones. The redundant fascia of the posterior flap is now made to cover the muscle stump to procure a new insertion for the muscles, and sutured to the fascia of the anterior flap. Skin is closed with interrupted silk-worm gut, with one small rubber tube on each side of stump for diminishing the collection of fluid. A firm dressing is applied for the first thirty-six hours. Leg is copiously dressed to maintain a semi-flexed position of knee.

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SOME NOTES ON THE DIAGNOSIS OF CARCINOMA FROM THE BLOOD SERUM*

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For hundreds of years countless workers have been engaged in the study of cancer from one

angle or another, most of them working to find a cause or a cure for the disease. As far back as 520 B. C., Herodotus records that Democedes treated Atossa, the wife of Darius, for a breast cancer, affecting a cure. Unfortunately no record has been left as to his method of treatment, so that we are as far back as we were 2410 years ago in that respect. One hundred years later, Hippocrates, in 420 B. C., gives us a very excellent description of the disease, as it affected the breast and certain internal organs, the trouble in those days being ascribed to the "black bile" which was sometimes found. He, however, was too wise a man to claim any cures.

The next records we have date from 10 to 190 A. D., between which years Celsus, Pliny and Galen suggest various forms of treatment, though none of them claim any cures. It is rather interesting to note that some of these forms of treatment, such as the actual cautery and the use of powdered charcoal to absorb the unpleasant odor, are still in use today.

Since then, almost everything which has ever caused any form of trouble has been put forth as a possible cause of cancer, and almost every conceivable form of treatment and almost every drug ever heard of, as well as some forms of treatment hardly conceivable, has been heralded from time to time as a cure.

Nearly every young pathologist has had a try at it from one or other of these angles, and although from time to time, somebody has seemed to be getting very near the endpoint, up to the present no person has ever really reached a place where his or her theory and procedure is universally satisfactory—their theories have always fallen down somewhere.

The only things which have been established beyond dispute are the well-known factors of chronic inflammation and chronic irritation as partial causes, but only partial causes.

Therefore, it seems that in the present state of our knowledge, the most important thing is to make an early diagnosis. To really effect a cure, this diagnosis must be made very early, as by the time we get a clear-cut clinical picture of carcinoma, the condition is usually so well established that real cure is practically hopeless.

In view of this I determined that it would be more useful, for the present, at any rate, to work along lines that would perhaps lead to the diag-

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nosis of the disease while it was still in a sufficiently incipient stage to give at least some promise of complete eradication, and considering that usually by the time there is sufficient growth to recognize clinically the condition is well established, it seemed that something in the way of chemical change was most promising.

Several tests have been devised from time to time for making a diagnosis from certain changes in the blood serum, all of which have for a time given considerable promise, but have finally broken down as real reliable tests, as it has been found that other conditions than cancer would give positive results. I studied what I could find in the literature on the subject, which was not very much, and finally came to the conclusion that if there were two tests which would give fairly accurate results, the fallacies in which arose from radically different causes, the use of these two tests in conjunction with one another should promise something useful, especially if the clinical picture were suggestive, and it was along these lines that I went to work. We shall now consider briefly some of these tests and their advantages and disadvantages, and pick out the two most useful for general use.

One of the most constant abnormalities in the blood serum is the rather marked increase in the power of the serum to inhibit the action of the trypsin ferment, which antitryptic power we know is present to some extent in normal serum. Meyer, Herzfeld, Roche and others found a marked increase in 90% of their cancer patients. This antitryptic power can be measured by finding the lowest dilution of serum, i. e., the dilution containing the least amount of serum, which will cause any inhibition of this ferment's action. I have worked this out as an index, calling it the antitryptic index, calling the dilution of normal serum 1, and expressing the dilution of the test serum as a fraction or multiple of 1, in the same way that we work out a color index, or an opsonic index. Thus, if we find that a dilution of 1-50 of normal serum just allows the complete digestion of a fixed amount of casein in a fixed time, and we find that a dilution of 1-150 of the test serum just permits complete digestion of the same amount of casein in the same time, we call the antitryptic index of the abnormal serum 3.0. This raised antitryptic index, however, is found in other conditions than cancer;

sarcoma, for instance, will give an index as high as from 1.6 to 2.3, and most diseases accompanied by much leucocytosis will give a raised index, sometimes as high as 1.8 to 2.0. This was noted by Weil and Schlecht, and led to their discarding this test as a means of diagnosing cancer. In carcinomatous cases, however, we find a rather higher index than in most other conditions, sometimes as high as 3.8 or even in advanced cases 4.0. This increased antitryptic power has been ascribed by S. M. Lewin to proteolytic ferments discharged into the blood stream by the disintegrating tumor cells.

Then there was the Meistagmin reaction, which was based upon a change in the surface tension of the serum. But it was observed that many pathological conditions also showed this change, and that it was also seen in perfectly normal pregnancies, so that it had to be discarded as of no great value, when used by itself.

Next, there was the epiphanin reaction of Weichardt, which depends on a change in the alkalescence of the serum. This was found positive in 81% of a series of cases examined by Jazsa and Tokeoka, but it was also observed that there were variations in the results due to factors not quite understood—sometimes the same specimen would give different results at different times, thus indicating that some alteration takes place, varying with the length of the interval between the collection and the examination of the blood. The results, therefore, were misleading, and none too reliable.

Stammler found that most tumor extracts exhibit more or less opalescence, which is cleared up by the addition of the serum from a cancerous patient, with the formation of a slight precipitate, while most normal sera, or sera from other pathological conditions fail to do so. However, it was found that some normal sera will produce this result, while sera from patients who are definitely cancerous sometimes fail to give the reaction. I have found the results constant only when the serum is from the same patient as the tumor from which the extract is made, and as this necessitates the removal of the tumor, I rather doubt its value, especially as the tumor is already available for histological examination, which is far more satisfactory than any form of chemical test.

Next, Ransahoff observed that the injection of

3 to 5 ccs. of serum from cancerous patients into guinea pigs which had been sensitized by the injection of 1 cc. of cancerous serum, produced a very weak, if any at all, anaphylactic reaction, while normal serum would produce a very pronounced reaction in such a sensitized guinea pig. He therefore concluded that a degree of immunity was conferred by an immunizing substance derived from the tumor, since there was immunity to the cancerous serum, and not to the normal serum. He found this test positive in 92% of his cancer series, doubtful in 5%, negative in 3%, and always negative in other conditions. This is, therefore, a fairly good test, but rather cumbersome and a lot of trouble, and not only takes considerable time but makes serious inroads on the stock of laboratory animals, as controls must be used.

Now, I have tried all these tests from time to time, and have found moderately good results from all of them, particularly Ransahoff's test, but all of them break down at some point or other, and most of them will not differentiate carcinoma from sarcoma.

I have, therefore, come to the conclusion that the test devised by Botelho, with slight modifications suggested by Ewing, and still further modifications which I have worked out, to be the most satisfactory, not only on account of its results, but from the point of view of its simplicity, and the ease of carrying out the test. By itself, however, it is not notably more accurate than some of the other tests, but we must consider the fact that the conditions which give misleading results in this test and in the measuring of the antitryptic index are radically different, and so, when these two tests are run together on the same patient, the results are gratifyingly accurate. In a series of 79 cases, all proved by histological examination, either post-operative or post-mortem, to be carcinomatous, 74 positive tests have been observed—93% accuracy. Of the remaining five, two had been, and still were being treated with radium, while the remaining three were cases of surface epitheliomata. However, it is claimed by some authorities that epithelioma is not a true cancer, and if this is the case, it may be merely a further support for this work. At the same time, it is only fair to say that six of the cases which gave very good positive results were also surface epitheliomata.

The test itself is a precipitation one, and requires nothing in the way of an antigen. The only things required are the two reagents which I shall describe, the serum to be tested, and known positive and negative sera for use as controls. All changes from the original reagents devised by Botelho have been in the No. I reagent, the No. II having been found most satisfactory as it was originally made up. The No. I reagent of Botelho was composed of:

Formol (a commercial preparation of formaldehyde

in methyl alcohol and water).....	1 cc.
Citric Acid	4.95 grams.
Distilled water to.....	100 cc.

Ewing found a better result by using pure formalin without the methyl alcohol, thus:

Formalin	1 cc.
Citric Acid	5 grams.
Distilled water to.....	100 cc.

I found very good results from this reagent, but I believe I got even better results from the addition of 0.25% of sodium citrate, thus:

Formalin	1 cc.
Sodium Citrate	0.25 grams.
Citric acid	4.74 grams.
Pure Iodine Crystals.....	1 gram.
Distilled water to.....	100 cc.

The No. II reagent is composed of:

Pure Iodine Crystals.....	1 gram.
Potassium Iodide	2 grams.
Distilled water to.....	210 cc.

The test is carried out by the addition of 0.25 cc. of the serum to be tested to a small test tube (I use ordinary Kahn or Wassermann tubes) containing 2.0 cc. of No. 1 reagent, which is then inverted two or three times, to mix thoroughly, without the formation of a foam. Then 0.7 cc. of the No. II reagent is added slowly from a pipette. A flocculent precipitate is formed which in most cases (in all cases where a normal serum or a non-cancerous one is used), dissolves on thorough mixing. Then a further 0.2 cc. of the No. II reagent is added, which forms a further precipitate, which persists after mixing if the reaction is a positive one. If the precipitate persists after the addition of only 0.7 cc. of the No. II reagent, the test is strongly positive. I have graded the results from the formation of a light or heavy precipitate after the addition of 0.7 or 0.9 cc. of the No. II reagent, in this manner:

Heavy precipitate after 0.7 cc.....	4 plus
Light precipitate after 0.7 cc.....	3 plus
Heavy precipitate after 0.9 cc.....	2 plus
Light precipitate after 0.9 cc.....	1 plus
No precipitate	Negative

All 1 plus reactions should be considered as doubtful, and should be repeated, with a new specimen of blood, if possible.

Several workers have encountered excellent results in their series, some 75% and some even more. Fry found positive results in other conditions than cancer—in patients free from cancer, but suffering from chronic inflammatory processes accompanied by much cell proliferation and disintegration. Stoupel considered that the test was of considerable value in doubtful cases, while Baty and Greene did not think that it was of much value in any case.

Just what this precipitate is seems rather doubtful, but it is the opinion of several workers that it is some form of protein, though examination of the blood by ordinary methods does not show any particular increase in the total amount of protein present. Several workers who have tried out the test believe that something is precipitated which is produced by the carcinoma cells in the process of their disintegration, which is not present in normal serum.

Now, of course, we get disintegration of newly formed cells in some chronic inflammatory conditions, which probably explains the results obtained by Fry, particularly if these were the type of chronic inflammatory condition which has been called "pre-carcinomatous," and on this point we have no information. At any rate, it is often very difficult to draw any distinct line between the pre-cancerous and the definitely cancerous stages. However, it would appear that this is merely one more indication for the necessity of estimating the antitryptic index along with the carrying out of the Botelho reaction, because the fallacies of these two tests arise from quite different causes, which are not likely to be confused. In addition there are usually some suspicious clinical signs which have led the physician in charge to have the test made, and, of course, we must never lose sight of the clinical side of the cases.

Briefly, then, I consider that a positive Botelho reaction, with an increased antitryptic index, especially if this be 3.0 or over, is sufficient to warrant a diagnosis of cancer in any suspicious case.

A summary of the 79 cases in this series, all of which were proved to be carcinomata by histological examination, may be of interest. Of

these histological proofs, 17 were obtained post-mortem, and 62 after operation. Of course, the 17 post-mortem cases were ones in which there was little or no doubt as to the diagnosis at the time when the blood tests were made, but some of the others were decidedly doubtful, at least from the clinical point of view alone. In three of the cases, though there was some suspicion of carcinoma, the diagnosis was by no means certain. However, with their suspicions and the laboratory report the surgeons felt sufficiently sure of their diagnosis to operate, and in each case a definite cancer was found. I have not yet seen a really definite case of carcinoma which gave a negative test, though as has been mentioned, there have been five which gave doubtful reactions, two of them being cases which had been treated with radium, which we may thus conclude causes the tumor cells to disintegrate in a different manner, so that whatever it is which is precipitated by the Botelho reagents is either retained in solution or is not produced as one of the end-product of the disintegration.

The other three doubtful cases were surface epitheliomata, and perhaps these disintegrate in a different manner, or maybe the substance which is precipitated becomes oxidized by contact with the air, this oxide not being precipitable by the reagents used.

However, even these five cases gave at least doubtful reactions—the faintest trace of a cloudiness—so that there was a definite change, as compared with normal serum. Cases treated by x-ray did not vary from untreated cases, so far as the laboratory work is concerned.

Of course, no test is of much value unless we know that a like result is unlikely to be produced by other conditions. So as negative controls, I have examined the sera from approximately 500 cases—many of which had been sent to the laboratory for Wassermanns or Kahns, but some also for Widal's and other tests. In every case where the reaction was at all doubtful, the doctor who had sent in the blood was asked for some clinical notes on the case, to rule out the possibility of a cancerous condition. In less than 1% of these cases (4 in all) was a definitely positive reaction obtained, and these were all long-standing cases of syphilis, with breaking down gummata, and we already know that some of these may become malignant. Approximately

8% of these controls, however, gave doubtful reactions, but investigation showed that these had been treated for syphilis with arsphenamine. Treatment by other methods—mercury, iodides, bismuth, and even substances so closely akin to arsphenamine as neo-arsphenamine did not tend to give positive or even doubtful results in the vast majority of cases. Patients with typhoid fever never have positive results. All the cases in this group of doubtful reactions gave only slightly raised, if raised at all, antitryptic indices, the highest being 2.0, and that only in two cases.

One very interesting case in the series was that in which the clinical signs were typical of abdominal carcinoma, of indefinite location, with an antitryptic index within carcinoma limits—2.3—but a negative Botelho was obtained on four separate occasions. However, the surgeon was sufficiently confident of his diagnosis to operate, as anybody else would, with the clinical picture presented, so an exploratory laparotomy was performed, which showed a large indefinite mass of much enlarged glands throughout the abdomen. One of these glands was taken out for biopsy and proved on microscopic examination to be a lymphosarcoma, and not a carcinoma at all. Another was that of a blood sent in for a Wassermann, with no suspicion of cancer, which gave a positive Botelho and a high antitryptic index. These results were called to the attention of the doctor, and a thorough examination of the patient made, which revealed a just beginning cancer of the cervix of the uterus, in a still easily operable stage, which followed by radium treatment, has made an apparently complete recovery.

I have been unable to check up on the patients to see when and if the reaction becomes negative after treatment, partly because of my removal to another part of the country, and partly because of the recent date of most of the operations, but I think that we can assume that, if the tumor has been completely removed, the reaction should become negative, because the cell-disintegration which we assume to be origin of the precipitable substance has been stopped.

To sum up the work done up to the present, then:

1. In the present state of our knowledge, the most important thing in connection with cancer is its early diagnosis, in view of the fact that by

the time the clinical picture is really distinct, the case is very often hopeless, so far as cure goes.

2. Of the several available tests the most promising are the Botelho reaction and the antitrypsin index estimation used together, the conditions which give misleading results being quite different in the two tests, and therefore, the two together being a much safer guide.

3. Too much confidence should not be placed in the Botelho test or the estimation of the antitryptic index alone, an opinion being expressed after the two have been carried out together.

4. The pathologist in this case, as in all others, should not lose sight of the clinical side of the case, and should not give a diagnosis of cancer, no matter how definite his laboratory findings, but should only express his opinion that in view of his findings, the patient probably has a carcinomatous growth.

5. The Botelho reaction may be doubtful, but never really negative, in cases of cancer which have been treated by radium, while treatment by x-ray does not seem to affect the reaction.

6. The reaction may be doubtful, but never really positive, in cases of syphilis treated by arsphenamine, but not in other methods of treatment. It may, however, be definitely positive in cases of breaking down gummata.

On the whole, therefore, we may conclude that after a little more investigation along these lines, the use of these two tests of the blood serum may come to be of considerable value in the early diagnosis of cancerous conditions, although the difficulty of getting hold of the patients at a sufficiently early stage to be of value will still persist until the general public has been educated to the point of having regular periodical general examinations made. And, in addition, it is not impossible that some further development of the technique may become useful in helping us to determine whether or not a tumor of the carcinoma type has been completely eradicated.

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DISCUSSION

Dr. F. C. Archibald, Decatur: I think Dr. Jamieson has something that would be well worth while for different members of this section to try out in their own laboratories. It is simple if you will just try it. I should like to urge it among different members where

they cannot get to Dr. Jamieson. I think they will find it is worth while.

Dr. F. Flinn, Decatur: We have sent specimens from our hospital to Dr. Jamieson on cases that were very indefinite and the tests all came back at least 2 plus, and after the operations they all proved to be carcinomas. I think we had eight cases.

Dr. H. M. Jamieson, Chicago: I know that I made considerable headway with this work while I was in Decatur, and I got a number of cases from Dr. Flinn and also from Dr. Archibald.

GONORRHEAL KERATOSIS

(Case Report With Experimental Studies*)

SAMUEL J. SULLIVAN, M. D.,

HARRY C. ROLNICK, M. D., and

CLEVELAND J. WHITE, M. D.

CHICAGO

The rarity of this clinical entity, together with some instructive experimental findings, prompts the reporting of this case. Several terms have been used to designate this condition, a quite common one being keratoderma blennorrhagicum. Most investigators have found histologically that it is really a dermatitis and not a keratosis. While it is associated with other gonorrheal manifestations as urethral discharge and arthritis, some insist that there are other etiological factors besides a gonorrheal basis. The designation, gonorrheal keratosis, closely describes the condition clinically although actually not the absolute correct terminology.

Historical. Perusal of the American literature reveals this case to be the fifteenth case to be recorded in this country. No doubt, many more have been observed. All have been in males. Only three foreign cases have been in females. The first case to be reported was by Vidal in 1893, with a minute description of the disease, which he mistook and treated as a syphilitic at the beginning. In 1899 Buschke divided all gonorrheal skin afflictions into four classes: 1. Simple erythemas. 2. Urticaria and Erythema nodosum. 3. Hemorrhagic and Bullous exanthems. 4. Hyperkeratoses. At this time only six cases of keratoderma blennorrhagicum had been reported in the world's literature.

Simpson¹ reports the first case in this country

in 1912. Recent case reports have been published by Stillians and Zeisler², Kretschmer³, Keim⁴, Wilmott⁵, Scholtz⁶, Millis⁷, and Rosenberg and Silver⁸.

CASE REPORT

A young adult male was first seen by one of us (S) on June 10, 1929, having thick scaly plaques on the hands and feet, with marked pain in several joints. His history revealed that he first had a gonorrheal infection in 1917, which was treated and cured. The second occurred in June, 1920, when the patient treated himself for six weeks and the discharge stopped. The third in 1923 was followed by a gonorrheal arthritis starting in the right knee. At this time he stated that he was admitted to the Detroit Emergency Hospital, where the knee was aspirated. Other treatment consisted of an external urethrotomy, bladder irrigations and sounds. His fourth infection started in March, 1928, and after two weeks of treatment his left ankle became swollen and very sore; the same condition in the right knee and the right ankle. Three days after the arthritis started, patient noticed a purulent discharge between his toes, the surfaces becoming raw, and after ten days thick, hard callous areas appeared, which were wart like in appearance. Later the patient noticed that the skin under the finger nails was becoming inflamed. He probed under a nail with a penknife and a serous discharge escaped. As the nail areas of his hands and feet were becoming more inflamed he noticed a peculiar looking yellowish pimple-like lesion in the region of his left ankle. The inflammation increased around and under the nails of both hands and feet and there was a piling up of a grayish horny like substance. These lesions were not painful unless they were injured. The joints, however, remained painful with limited motion. On May 2, the patient was sent to the Cook County Jail where local injections were given for gonorrhea. Later the patient was transferred to the House of Correction Hospital and was seen on June 10, 1929.

Physical examination at this time revealed a thin adult white male who was bedridden because of painful joints and who complained of an obvious skin affliction and a urethral discharge. The general physical examination, including the cardiac, vascular, neurological, alimentary and respiratory systems, was essentially negative. The genital system revealed a urethral discharge with an inflamed meatus; testicles and epididymis normal in shape and size. The prostatic lobes were equally enlarged and slightly tender. The seminal vesicles were palpable and moderately tender. Massage of these parts greatly increased the discharge. There was an inguinal adenopathy but no tenderness. Practically all the joints on the lower extremities were painful on palpation, passive and active movement. The knees and ankles were most actively involved. The right wrist and left elbow were also involved to a moderate degree. The sacroiliac synchondrosis was also tender on palpation.

The skin presented thick keratotic plaques which were

*From the Hospital of the House of Correction, Department of Health, Dr. Arnold H. Kegel, Commissioner of Health, City of Chicago. Read before the Chicago Urological Society, March 27, 1930.

most abundant on the fingers and toes. Less horny-like areas were present on the scalp, which resembled a very severe seborrheic dermatitis. On the pubis and scrotum were similar lesions of about the same severity as the scalp. Around the joints, especially those involved with an arthritis, were more of these horny-like lesions. Other parts of the extremities, the abdomen and the chest presented smaller lesions with a crust much less horny in appearance. It seemed that the class or type of lesion varied with the type of skin. The skin of the soles of the feet being naturally calloused presented lesions which were very thick, crusted and horny. Under the nails where there is naturally an excess of redundant tissues, there was a piling up of this massed dead tissue until some of the nails stood at right angles to the fingers. On the hairy regions was the type that resembled a severe seborrheic dermatitis and on the smoother parts of the body the lesions resembled a shaded droplet of waxy substance. In general this case fitted in very well with the fourth division of Buschke's classification; that is, the hyperkeratotic type.

The serology for syphilis was negative, including both the Wassermann and Kahn. The urine was acid, showed a trace of albumin, many shreds, many pus cells, but no casts. A smear from the urethral discharge showed gram negative intracellular diplococci. Smears from the serum of the various lesions showed no evidences of gonococci.

Histo Pathology. Sections were made by Dr. Stuart C. Vaughan, Pathologist at Wesley Memorial Hospital. Section of old dried keratotic lesions showed that there was a hyperemic border surrounding the typical crusts.

Sections of a new droplet type of lesion revealed some vesicular lesions in the involved areas. Thus, as other investigators have said, the histological picture is that of a dermatitis, not a keratosis.

Experimental Studies. These were carried out by means of the ordinary method of scarification and auto inoculation. The materials used were first, a control; second, serum from under scab of a new typical droplet lesion; third, the urethral pus; and fourth, serum from under scab of an old thick horny lesion.

These vaccinations were placed on the areas over backs of the shoulders where no evidence of lesions previously existed.

EXPERIMENTAL DATA

	New Lesion			Old Lesion
	Control	Serum	Urethral Pus	Serum
6/17/29				
6/19/29				
6/20/29	..	red	red	..
6/24/29	0	very red	vesicle large	0
6/26/29	0	very red	areola and hyper-keratosis	0
6/27/29	0	very red	areola and hyper-keratosis	
6/28/29	0	vesicle and crust	no change	0*
7/2/29	0	pustular hyper-keratosis	no change	0
7/8/29	0			
7/8/29	0	pustule rubbed off	decreasing	0

*Rx started.

Treatment and Progress. Treatment was started on June 29 after new lesions had been produced from the urethral pus and from the serum from an original lesion. The treatment consisted primarily of a nourishing diet including fresh fruits, milk, eggs and vegetables. (Previously the patient had been on routine prison diet.) The prostate was massaged twice weekly, and the vesicles were stripped down. Warm irrigations of a weak solution of potassium permanganate or boric acid were used every other day; on alternate days instillations of a 1 per cent. solution of a proprietary preparation called vcnargen (a diamino silver in oil) were used. One c. c. of gonorrheal vaccine was injected subcutaneously two to three times weekly. On July 31 a vasotomy was done (R & S) at which time 10 c.c. of collargol was injected into each vas deferens.

Ten days after treatment was started an attempt was made to reproduce a new lesion from the urethral pus following prostatic massages. This attempt failed completely.

The condition of the patient improved quite rapidly following the instigation of treatment. After ten days of treatment the nails were becoming blackened and were dying; the matrix was becoming more inflamed. In two weeks the patient was able to move the still swollen joints with a marked diminution of pain. A month later the patient was able to get around on crutches; the right knee being the most troublesome joint. The nails had come off and new nails were growing. Large masses of horny tissue had peeled from the soles of the feet. Six weeks after the instigation of treatment the patient had a sudden rise in temperature up to 103° which lasted from six to eight hours. No reason for this fever was found.

Early in September, two months after starting treatment, the patient was walking around the hospital with the aid of a cane; he had gained about twelve pounds in weight. All the joints except the right knee had full motion without pain. The new nails were progressing normally except for a small amount of keratotic tissue under the tips. At this time the patient left the hospital due to legal complications. A report from the penal institution where he is now incarcerated states that he is physically capable and shows no evidence of the lesions described.

SUMMARY

1. The type of lesion varies with the type of skin where lesion occurs.

2. The lesions are probably caused by both the toxins of the gonococci, and by the gonococci themselves, as suggested by the experimental studies.

3. Local urological treatment, undoubtedly, is the treatment of choice.

4. After stringent treatment was instigated the urethral pus did not produce new lesions.

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THE EARLY DIAGNOSIS OF GLAUCOMA*

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Upon first thought there does not seem to be any reasonable excuse for presenting a paper on the diagnosis of glaucoma before this section. If we were to present a description of obvious glaucoma it would be a waste of valuable time on this already crowded program. But we believe that a discussion of incipient or preglaucoma is not presuming. If we are to wait until a majority of the classical symptoms of intraocular hypertension are present we are condemning the patient to a certain irreparable loss of vision. If a diagnosis of impending glaucoma can be made before there is extensive loss of peripheral fields and before a large paracentral scotoma has developed we have a right to congratulate ourselves. However, if we delay our diagnosis or disregard the very early symptoms until we have sufficient evidence of the disease to make a definite diagnosis we should be subject to criticism. We all realize that the earlier that

treatment can be established in glaucoma the more satisfactory are the results.

It is not necessary to have access to expensive equipment to make a diagnosis of incipient intraocular hypertension. Improved and expensive equipment is much to be desired and is a convenience but will not be commonly found in the offices of the average down-state oculist. We simply propose to review a few of the early findings by inexpensive and uncomplicated methods.

We are not interested, in this brief account, in the etiology, pathology or treatment of intraocular hypertension. We are not interested in acute glaucoma, a condition which is only too evident to the observer. We are not concerned with glaucoma well established, where the fields and vision have been markedly reduced, disks cupped and grey and the eye preceptibly hard to palpation. We are only trying to review a few helpful hints about intraocular hypertension before irreparable damage has been done by the disease. We feel that in a condition as unsatisfactory of management as chronic intraocular hypertension it is better to be overcautious than dogmatic in the very early stages of the disease. Being constantly on the alert may cause us to change our diagnosis at times, but we will be more likely to make earlier diagnosis and save vision. Overcautiousness of the oculist may cause certain types of patients to become too eye conscious whereas dogmatism may give other types of patients a false sense of security.

Glaucoma is most common in the presbyopic period and for that reason we should regard the presbyope as a potential intraocular hypertension patient. That does not mean that we should condemn every presbyope to glaucoma, but with this particular patient we should be especially awake to its possibility. There are patients, whom we have had under observation for many years, of whose refraction we are reasonably certain. Suddenly we find those patients becoming more hyperopic. Before we subscribe to this change in refraction we should investigate the possibilities of chronic glaucoma. Again we may be seeing the patient for the first time. He may and usually does give us a history of having had several unsatisfactory refractions in a relatively short period of time. Usually he has from two to five or more pairs of glasses with him. If these corrections should be neutralized chrono-

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logically it would most probably be found that the distance correction was increased a quarter to a half a diopter each time. Upon questioning these patients we find that no attempt had been made to take the fields of vision either peripherally or centrally nor any attempt made to ascertain the intraocular hypertension. We should regard all such patients as potential glaucomas, at least until proven otherwise, and needless to say that this can not be done on one observation.

When a patient tells us that he has difficulty reading at night when he has had a satisfactory correction within a reasonable length of time and that he has difficulty entering buildings from outdoors, we should not pass up the history as whim of the patient, but should give it some consideration. In this history the patient is unconsciously giving us his light differential. With a history like this we only need a photometer as a means of confirming the symptoms. There is a very simple method of estimating, in a relative manner, this particular aspect. Granting that with a perfect refraction and with the proper addition for near that the patient is able to read the finest print on the test card, but when the room is darkened to such an extent that the examiner is barely able to read the fine print and the patient cannot, or even the next size type, we have a relative estimate of his light differential, of course excluding other pathology. The same may be accomplished with the Williams railroad lamp for testing color perception. If we all had the means, space and time to afford a light differential apparatus we probably would be surprised to find the number of older patients who have reduced light differential. This does not necessarily mean that every reduced light differential is an incipient glaucoma, but it does mean that glaucoma should either be ruled in or out of the case. Reduced light differential is one of the earliest symptoms of impending glaucoma.

Central vision is a poor index upon which to work in preglaucoma. Central vision is too many times retained even when the disease has progressed over an extended period of time. However, when the patient retains good central vision until late in the disease and that vision then starts to become impaired the progress is rapid in spite of medical and surgical treatment. Many times a patient will be able to read

20/20, but he will tell us that he does not see it clearly or a part of the line on the test card is clear but the rest of the line disappears. Here again the patient is unwittingly hinting to us that he has a possible paracentral scotoma.

Few of us like to take fields. It consumes time and is a monotonous task. If we have capable and conscientious assistants this drudgery may be delegated to them. However, this is important that repeated fields on the same individual should be taken by the same operator. There is a fine technique in taking fields and the results are really important, though as a rule we consider the taking of fields as only relatively accurate.

The peripheral fields suffer early in the disease. This may be difficult to differentiate from other diseases in their incipency. The nasal field usually suffers first. This may be a uniform loss of a sector like cutting off the field in the median line and considered by Ronne as an early indication of very serious intraocular hypertension. With a great loss of peripheral fields, not ascribable to other pathology, we should continue our routine in the investigation of intraocular hypertension.

More important than the peripheral fields is the paracentral scotoma. This together with the light differential are the earliest findings in chronic simple glaucoma. The paracentral scotoma is difficult to determine. We have various types of instruments to estimate the paracentral scotoma or what was once erroneously known as an enlargement of the blind spot. The paracentral scotoma occurs early in chronic simple glaucoma and partially surrounds the blind spot or may be very closely associated with it. This loss of field may very early in the disease be associated with the peripheral loss and even connected with it. Perhaps the most satisfactory instrument we have at present to outline this central loss is the electric campometer. But all such instruments are expensive and if the average oculist in a down-state city could financially afford the outlay for such instruments it is doubtful if he could afford the office space necessary nor the time and training to adequately manipulate them. While we have the perimetric arc to determine the peripheral field it is inadequate in estimating the paracentral field. There are several campometers on the market that are

fairly satisfactory, but there is no instrument on the market that can handily answer both purposes except the tangent screen.

The tangent screen can be constructed of a commercial black window shade which may be suspended on an ordinary curtain roller from the ceiling so that it may be rolled up out of the way except at such times as it might be in use. A small white circular spot may be painted at such a position so that it will be on the level with the direct gaze of the average patient seated. With this as a radius circles may be traced with a very soft lead pencil as follows:

Angle of 10 degree radius of	6.25 c m
Angle of 20 degree radius of	14.28 c m
Angle of 30 degree radius of	25.00 c m
Angle of 40 degree radius of	40.00 c m
Angle of 50 degree radius of	62.50 c m
Angle of 60 degree radius of	100.00 c m
Angle of 70 degree radius of	175.00 c m

From any reputable optical house a 50 cm. rod with cubes containing the proper sized colors may be purchased. For the peripheral field the cubes at one end will contain the colors with a diameter of 5 mm. and at the other end of the rod the colors which may be used for the central fields will measure 2 mm. in diameter. The length rod will give the distance at which the patient should be seated from the screen. The entire cost of the apparatus should not exceed fifteen dollars. Both the peripheral and central fields may be obtained on the tangent screen. The procedure is more rapid than with the arc and the campometer and relatively as accurate. We can see no reason why any oculist should not be able to obtain both the fields and with a slight expenditure of money and time the taking of fields will become not a drudgery but really a fascinating study.

All paracentral scotomata may not be glaucomatous. There may be some choroidal or retinal defect that may escape detection with the ophthalmoscope. None of us need pride ourselves on being infallible with an ophthalmoscope. Ordinarily these defects are not progressive. But if we find these defects progressing without any ophthalmological evidence to account for them we may assume that they should rather be ruled into the glaucomatous field than out.

Premature presbyopia may be due to three factors. Imperfect refraction, asthenia, which may

be associated with some general pathology and impending glaucoma. While with the aid of the internist we may not be able to convince ourselves of the exact cause of the condition we should keep the patient under periodic observation. We believe that the correction sought by the patient, though it may be prematurely presbyopic, should be supplied, because the patient is coming primarily for comfort and it may be months and even years before we can convince ourselves that this particular patient has glaucoma. As a matter of fact many of the patients with whom we have more than ordinary refractive difficulties in the late thirties and early forties later show up with the definitely or easily recognizable glaucoma.

Lacrymation is a condition that should receive consideration especially in the glaucoma age. Investigation having ruled out tear tract difficulties, conjunctivitis and refractive errors, we should turn our attention to preglaucoma. The history may be independent of exposure, reading or concentration. The lacrymation occurs suddenly at almost any time and lasts from a few minutes to several hours. The patient should be closely questioned as to whether there is an actual lacrymation or only a sensation of moisture in the eyes, as the latter condition is very common in hyperthyroidism.

Empirically pilocarpin has been prescribed for patients complaining of difficulty with close application and found beneficial. These patients have in most cases been carefully refracted and rechecked, yet they complained that they could only read a short period of time. The fields may have caused suspicion but the tension under repeated observation was always within normal limits. Empirically pilocarpin has been prescribed in such patients not because there has been very much evidence as to actual presence of glaucoma but in the hope that it might do some good. In most cases the complaint was relieved. Later if we should chance to follow these patients closely and long enough hypertension would be manifest. It has occurred to us that miotics might be used to good advantage as a therapeutic test, as mercury, iodides and arsenic are in lues.

Patients with vitreous opacities might be good candidates for glaucoma. Hypertension in such cases might not be a true, simple glaucoma.

Though the percentage of chronic simple glaucoma may be small in vitreous opacities, we believe that the possibilities should be weighed, because it is reasonable to expect that if one pathological condition is present another might follow either as a complication or a sequela.

Incipient cataracts may at times present complicating hypertension. It is contestable whether the hypertension occurs as a complication or merely as a coincidental factor. However, we should not lose sight of the fact that while watching a cataract until such time as operation is imperative or convenient that the patient might lose ultimately valuable vision due to hypertension. The hypertension should be handled either medically or surgically as the case demands. Cataract operation following surgery for glaucoma should not present unusual difficulty.

The fundus examination in the very early stages of chronic simple glaucoma reveals practically nothing. If we find definite cupping of the disks we may rest assured that irreparable damage has been done and that the patient has lost considerable vision, either peripheral, central or paracentral, and we need not be elated on making such a diagnosis. A patient with definite cupping of the disks is usually a good candidate for early surgery. The vessels of the fundus should be carefully investigated for signs of compression especially where the arteries cross the veins. The arterial pulsation either with digital pressure or the instrument designed for the purpose is difficult to obtain and is of only relative value except in very expert hands.

The slit lamp gives valuable information particularly in regard to the deposits of the showers of pigment, steaming of the lens capsule and atrophy of the iris. Just how much the slit lamp is going to affect the diagnosis of very early preglaucoma is problematic, but nevertheless it is one of the valuable aids in the diagnosis of various ocular conditions, and while it is not a common equipment in the offices of the average small city oculist, there is no doubt that in the next decade it will become as much of his equipment as the trial case and the ophthalmoscope.

The final argument in early glaucoma is tonometry. Tonometry is another procedure in the diagnosis of chronic simple glaucoma that

requires very careful consideration. Tensions should be taken by repeated observations on the individual and always by the same observer. It is doubtful if any two observers using the same instrument on the same individual can obtain the same results. This may be due to two factors. There is a difference in the technique of the operators and we must consider that repeated palpations of the eye within a short period of time reduces the intraocular tension. Repeated observations should be made as nearly as possible at the same hour of the day, because intraocular tension varies during the day and is also dependent on the type of work to which the individual is accustomed.

The technique of tonometry is important. Absolute cooperation of the patient is necessary and this requires good anesthesia of the eye. The patient should be in the recumbent position and the gaze directed in such a manner that the cornea is looking absolutely upward. The instrument is placed on the center of the cornea and held perpendicularly. No undue pressure should be used but the handles of the instrument should be depressed sufficiently so that the operator is reasonably sure that the instrument is resting of its own weight on the eye. Readings should be taken quickly and this requires an assistant who watches the indicator while the operator gives his undivided attention to the footplate of the tonometer to see that it always remains on the center of the cornea. Readings should be taken quickly because the attention of the patient is hard to hold and the slightest squeezing of the lids or movement of the eyes will tend to alter the reading. Very often we will find a fluctuation of the reading synchronous with the pulse. The extremes in this instance can be disregarded and the means of the variation accepted.

The tonometer should not be allowed to remain on the cornea any longer than is necessary to estimate the reading. The edge of the footplate as well as the plunger is not completely rounded off and an unexpected movement of the eye under the weight of the instrument might result in an abrasion of the cornea. Under ordinary circumstances this would only result in a few hours of inconvenience but with actual hypertension present might result in a very stubborn corneal ulcer and a corneal ulcer in the

presence of an intraocular hypertension is not a very pleasant situation.

In the early stages of suspected glaucoma the finding of a slight elevation of the intraocular tension on a single occasion should not be sufficient to warrant a diagnosis. However, the repeated finding of the elevation with loss of central or peripheral fields ought to place us on the offensive. Occasionally the persistence of a slight elevation of tension without other findings might be discounted because some patients have a glaucoma with a tension of twenty while others are normal with a tension of thirty. However, a persistence of tension of over 30 should be investigated thoroughly and repeated observations made.

Summary: In summary we would say that chronic simple glaucoma is a condition which may not be absolutely diagnosed in its incipency but may be suspected and routine observations established in order to prevent ultimate loss of vision. Loss of peripheral and central fields with reduced light differential are the earliest findings in early chronic simple glaucoma. Hypertension is not a constant factor and must be followed up by repeated examinations before we can be reasonably certain that it is present. We cannot afford to be dogmatic but should reserve judgment and watchful waiting is a good policy. Expensive equipment is not necessary, but keen observation is essential.

DISCUSSION

Dr. W. H. Wilder, Chicago: I think Dr. Roth has covered the subject very thoroughly and all I can hope to do is to emphasize certain diagnostic tests that are necessary in these cases.

I think we should always bear in mind that any eye patient who consults us may at times have hypertension. Ophthalmologists in general are aroused to the importance of the constant lookout for this insidious condition, and this mental attitude prompts us to make tests in many cases which may not present the characteristic and typical features of glaucoma.

A statement from the patient whose refraction has been perfectly corrected that at times he has blurring of vision in the course of reading should suggest examination of the tension. In cases of simple glaucoma we do not frequently have the characteristic signs of the rainbow phenomenon when looking at a light. Frequently, in elderly people we encounter this condition that should arouse our suspicion. In many cases the rainbow vision may be caused by a thin layer of mucus worked into a kind of an emulsion by tears and forming

a very thin layer across the cornea thus giving the same symptom that we find in congestive attacks of glaucoma. Simple irrigation of the eye with boric solution is sufficient to differentiate this.

I suppose the essayist has intended for his subject "Simple Non-Congestive Glaucoma" and not the congestive glaucoma which the older writers describe as "Inflammatory Glaucoma." Of course, we should recognize that cases of simple or non-congestive glaucoma may in certain cases merge into those of the congestive type with very much higher tension, viz.: up to 60 or 70 Schiotz.

It may be well when we speak of the clinical varieties of glaucoma to follow the suggestion of Elliott and group them in two main classes, viz.: Congestive and non-congestive. It is the opinion of many students of this subject that these two varieties overlap and that the congestive may grow out of the simple type or non-congestive variety if certain conditions arise. Such favoring conditions might be chilling of the body, excessive physical exertion, unusual emotional excitement, worry or grief. These are recognized to be prominent contributory causes of this condition.

The main thought that I wish to emphasize is that we should in the course of our day's work bear in mind that this insidious condition may be present in our cases and if there is any suspicion at all we should be prepared to take an accurate record of the tension, not only with the fingers but with a suitable instrument for the purpose of record.

In connection with this subject I want to emphasize one other point and that is the importance of the ophthalmologist's acquiring a very delicate sense of touch so that by palpation of the eye he may be able to determine fairly closely the degree of tension of the globe. Simply because we have developed instruments of precision for this purpose is no excuse for neglecting the important test of palpation with the fingers. As we know, Bowman noted elevated tension as +1, +2, +3 and lowered tension as -1, -2, -3. The ophthalmologist should be able to tell with his fingers if the tension is normal or slightly below normal, although he might not be able to recognize a few degrees of elevation of tension above normal, in which case the tonometer would come into use. This is as important for our work as is the tactile sense in the case of the general practitioner who must be able to recognize in his physical diagnosis not only the sounds that come from the indurated area in the lungs on percussion, but should be able to feel on percussion the increased hardness of the area, a thing which he can not do so well if he relies entirely on the pleximeter or a percussion hammer.

The valuable tonometers that have been brought out by Schiotz and others in recent times, beautifully calibrated as they are, will not tell us the absolute truth in millimeters of mercury in regard to the increased intraocular pressure of any given case. This would only be possible if we could use an instrument connected with a needle that could be plunged into the interior of the eye. We can tell, however, from a

series of tests in a given time in any one individual whether or not the tension is uniformly raised for that person and therein lies the value of these various tonometers and we can be fairly sure that if the instrument is correctly calibrated that we can arrive at some fair approximation of the normal tension.

Of course, we must always remember that in certain cases of faulty corneal curvature, either from regular or irregular astigmatism or from actasia or flattening of the cornea that we get decidedly different readings than when the cornea presents normal curvature, because the foot-plate of the instrument has been constructed on this basis.

In cases where there is considerable abnormality of the corneal surface it would be well to use an instrument such as that devised by Baillart with which one can take the tension by pressing on the sclera as well as on the cornea. This instrument also has the advantage that it can be used with the patient in a sitting posture whereas the instrument of Schiotz had better be used with the patient in a perfectly recumbent position.

It is usually best for accurate observation to have one person adjust the instrument and another to read off the amount of deviation of the needle.

These are only a few of the points in the consideration of this important subject, but I had better avoid continuing any further and leave other equally important subjects to the discussion of others.

Dr. Richard J. Tivnen, Chicago: Dr. Roth has given us a practical and sane presentation of this ever interesting subject. I can add little to his excellent presentation, but following Dr. Wilder's example, I may emphasize one or two points which occur to me.

Simple glaucoma is a type of disease which occasions all of us much perplexity and trouble. One outstanding difficulty, common to most of these cases is to obtain the intelligent co-operation of the patient. It often happens that our chief difficulty is to manage the patient rather than that of treating his disease. Most of these patients want immediate results and as Dr. Roth has said many of them feel that a proper fitting of glasses is all that they require. Since they experience no ocular pain and their eyes give no external evidences of inflammation, they can see little practical value in undergoing the time consuming routine examinations—of visual fields, ophthalmoscopic and tonometer tests of the specialists coupled with the general physical examinations of the internist. Experience has proven that this is the attitude of most of this class of patients. In view of this, I have found it of value, at the outset, to take time enough to go over the details of the case with the patient, stressing in particular the necessity of frequent observations over a more or less extended period, with the idea of enlisting his intelligent co-operation. I have found this plan to prove helpful to both the patient and to myself.

I am in hearty agreement with Dr. Roth in his insistence that a well organized routine of examination comprising fields and tonometer readings be carried out

consistently at regular intervals while the patient is under our observation.

Naturally it is time consuming to make these investigations but these tests as we know, provide us with practically the only dependable data upon which one may estimate the clinical progress of the case.

I feel, too, that we should stress the importance of reasonably regular examinations of the patient's general system in our care of these patients with particular emphasis on the cardio-vascular system, arteriosclerosis, etc. I have enjoyed Dr. Roth's paper very much indeed.

Dr. W. C. Williams, Peoria: Dr. Roth spoke of the increase in presbyopia. On the contrary, I have seen a very definite increase in myopia in glaucoma. I have in mind a case in which myopia increased from around two diopters to eight diopters during the course of glaucoma in a woman about seventy years of age.

Dr. T. D. Allen, Chicago: Recently, there has been some very interesting work done at the University of Chicago, particularly by Dr. Kronfeld, who has come there as a full-time professor. Anybody can make a diagnosis of a well-established glaucoma, but it is in these incipient cases that the trouble lies. One of their investigations led to their finding the time of reformation of the aqueous. They would abstract the aqueous with a needle from the anterior chamber and measure the length of time which it took for the tension to come back to normal and then compare that with the normal case. They found in practically every instance of pre-glaucomatous state that the tension came back to normal considerably more quickly than it did in the normal cases.

Dr. H. W. Woodruff, Joliet: Regarding this subject of the early diagnosis of glaucoma, this is something that applies to almost every disease from which the human body suffers. I lost a very good friend because the diagnosis was not made of pernicious anemia for nearly a year, notwithstanding the fact that he had been examined by internists. After his death, while in conference, the internist who had finally made the diagnosis used this expression: "So-and-so should not have overlooked that, he should have had that in mind;" in other words, if he had been looking for this disease, pernicious anemia, it would not have escaped him.

Glaucoma, I believe, occupies about the ratio of one per cent. of eye diseases. If you have one hundred eye cases, one of them may be a case of glaucoma, but you have to have the disease in mind, in early cases, otherwise it is very, very easy to overlook it.

Then I think, as Dr. Tivnen has mentioned, if it is at all possible you should not think you have to make an absolute diagnosis on the first interview, on the first examination of the patient; you should have a fair chance at the case and a second or a third examination, that is in these doubtful or incipient cases, so that you may come to the correct conclusion when you have all the evidence. There are cases, you know, of glaucoma that do not have a tension as high as thirty-seven,

sometimes they are in the twenties or even as low as twenty, and yet they have every other symptom of glaucoma except the one of tension and they grow progressively worse and worse, just as most cases of glaucoma do. So I believe if the examiner has in mind, particularly in these people of middle life or nearly that or beyond, the possibility of glaucoma (of course, we are always thinking about cataract or presbyopia or choroiditis or vitreous opacities), he will overlook fewer and fewer of those cases.

Dr. Harry S. Gradle, Chicago: In aiding the early diagnosis of glaucoma, for some time past we have been putting our patients in the hospital and measuring the tension every four hours. It is of great value to take the tension of the patient at eight o'clock in the morning, noon, 4 P. M., and at eight at night. The patient is started without any miotics whatever. During the first twenty-four or thirty-six hours the tension is measured every four hours, the physical examination of the patient is completed, and during that length of time the patient is put through the so-called Seidel dark room test. Seidel found that certain individuals in the earlier stages of a simple non-congestive glaucoma will develop an increase in tension after a stay in a dark room for a sufficient length of time to permit the pupil to pass beyond the definite given threshold for that individual. In other words, when the pupil dilates to a definite point the anteroposterior diameter of the iris has become sufficiently thickened so that the chamber angle is obstructed enough to cause an increase in pressure. This is almost characteristic of a glaucomatous or a pre-glaucomatus eye. It is a test that is very simple for you to carry out in the office, simply measuring the pressure of the eye tonometrically before and then putting the patient in a completely dark room for an hour and measuring the pressure at the end of that hour. At the end of the hour the tension will have increased anywhere from six to fifteen millimeters of mercury. At the end of the thirty-six or forty-eight hour period in which no miotics were used, the patient is then started with the instillation of one-half per cent. of pilocarpine at varying intervals, with the tension measured in the same way. The next day the concentration of pilocarpine is increased to one per cent., the next day two percent., and, if necessary, on the subsequent day eserine may be used as well. In this way we know what the pressure will be in those eyes at varying times of the day under varying conditions and under miotics of varying strengths. I believe in that way we are able to outline the course of treatment for that case of simple glaucoma far better than if we just use two per cent. pilocarpine haphazardly.

Dr. J. H. Kankakee: We simply brought this subject up as a matter of discussion, because I figured we could learn more by the discussion than by the presentation of the paper. We wish to thank the men who have so kindly discussed this paper. We were aware of Dr. Kronfeld's work, but we hardly think he has published that yet; that is the reason we did not mention it.

INDICATIONS FOR THE SIMPLE MASTOID OPERATION*

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In many large ear, nose and throat clinics one will discover that certain surgeons operate on many more mastoids than others. This is also true in the private practices of surgeons who have equally large clienteles. The question of indication for operation therefore arises. The group of cases considered here are those cases beginning as an acute purulent otitis media in which the question of a simple mastoid operation is later considered.

One naturally raises the question what conditions determine the time for posterior drainage in these cases. Whether one individual is conservative in his judgment or whether one is radical, there still remain certain outstanding findings in most cases, based on the interpretation of the clinical findings, which leave little doubt as to whether the patient should or should not be operated on. Such cases might well come under a classification of relative indications in contrast to cases of absolute indication in which the call for a mastoid operation is without question.

Before entering upon the main subject it may be well to eliminate the cases of absolute indication for a simple mastoid operation. Under this heading are the cases with the following complications which develop during an acute suppurative otitis media or come to the surgeon as such for the first time. These cases are those of 1, abscesses of the soft tissues and 2, intracranial complications.

Not infrequently we encounter at our first examination a purulent otitis media with a postauricular subperiosteal abscess, a Bezold's abscess in the sheath of the sternomastoid muscle, a temporal abscess, or a pharyngeal abscess, the result of a fistulous extension of the infection from the middle ear. In these cases there are the findings of an acute purulent otitis media with fever, pain and tenderness, leucocytosis, and destruction of the mastoid bone upon x-ray

*Read before Section on Eye, Ear, Nose and Throat, Illinois State Medical Meeting, May 20, 1930.

examination to confirm the extension of the process through the mastoid bone.

There is little difficulty in recognizing these types of mastoiditis, but one might emphasize the pharyngeal abscess type because of its rarity. This is due to the extension of a deep cervical cellulitis, usually pointing in the peritonsillar region, secondary to involvement of the deep petrous mastoid cells. An inability to widely open the mouth, with pain referred to the lower jaw and temple, with edema and swelling of the soft palate and peritonsillar regions on the side of the ear infection, establishes the diagnosis.

The complications of a facial paralysis or labyrinthine symptoms in the course of an acute middle ear suppuration do not establish an absolute indication for a simple mastoid operation as most text-books advocate. A facial paralysis coming on early in an acute suppurative middle ear infection may be due to a toxic neuritis or pressure of a swollen mucous membrane, or pressure of exudate in the middle ear on the nerve in its tympanic course. Many of these cases show a dihiscent of the facial canal. Under such circumstances the general progress of the middle ear suppuration itself, under adequate treatment, as outlined below, will determine when a mastoid operation should be performed. With resolution of the middle ear infection there will ensue a recovery of the facial paralysis, which, however, may be a matter of several months. However, if the middle ear process continues to become worse in spite of adequate local and general measures, a simple mastoid operation should be performed to terminate the cause of the facial paralysis and to terminate the middle ear infection. Where the facial paralysis is seen late in the course of the acute middle ear infection one must then determine from the history, the course of the disease, character of the discharge and other local findings, whether there is any bone necrosis. In such cases a simple mastoid operation, at least, is undertaken. In tuberculosis of the middle ear in which the infection is a chronic one from the onset, only the radical mastoid operation is to be considered.

The development of a labyrinthine involvement complicating an acute suppurative middle ear infection, presents a most difficult problem in arriving at a rational therapeutic procedure. When irritative labyrinthine symptoms arise,

waiting increases the risk of the inflammation spreading to the meninges, causing a meningitis, which is so fatal. On the other hand, with early operation on the mastoid in these cases, we risk a similar fate through operative trauma. An analysis of many cases of this type, treated by various clinicians, leave one with no absolute therapeutic principles in their treatment. Yet there are some guides which should be the basis for our mode of treatment. The cases in question are those cases of labyrinthitis in which there is only partial destruction of function. A mastoid operation in these cases may precipitate a fatal meningitis by reducing the resistance of the tissues and enhancing the virulence of the organisms through operative trauma. Conservative treatment and absolute rest will often prevent a mastoid operation and a fatal meningitis. However, if the condition, in spite of good drainage of the middle ear infection and absolute rest, spreads to the meninges, operative interference is necessary, but a radical mastoid and labyrinthectomy are demanded at the same time.

Meningitis as verified by spinal fluid findings complicating an acute purulent otitis media is always an indication for a mastoid operation. The spinal fluid findings, as well as the course of the clinical picture is of great value as a guide to the mode of treatment. If the first spinal fluid tapping shows less than 3 polymorphonuclear leucocytes per c. mm. and there is gradual improvement in the clinical picture, watchful waiting under absolute rest is the treatment of choice. However, an increase in the cells of the spinal fluid to more than 6 c. mm., the spinal tapping prompted by a change in the clinical picture for the worse, is indicative of a beginning meningitis, which demands operation on the labyrinth as well as on the mastoid. Where total deafness ensues and the clinical and spinal fluid findings indicate meningeal involvement, labyrinthectomy must be performed. These statements are based upon the clinical observation that as soon as a labyrinthitis becomes diffuse the cerebrospinal fluid shows a pleocytosis. Between these extremes of watchful waiting and labyrinthectomy there are those cases in which the spinal fluid and clinical course show progress of the labyrinthitis, but as yet no meningitis. Before the advent of a meningitis, many of such cases recover under a hurried antrotomy under

local anesthesia, with bur and rongeur, rather than with the hammer and chisel. Experience and judgment alone will lower the mortality. In this connection it might be well to emphasize the value of the spinal fluid, Wassermann and other luetic tests. As an acute purulent otitis media complicated by a labyrinthitis is often an advent of a late secondary or tertiary lues, its diagnosis is of great importance, as salvarsan and not a mastoid operation is the treatment. Where the progress of the middle ear infection, as outlined below, in itself demands a mastoid operation in the presence of an associated early labyrinthitis, only the least operative interference to accomplish an antrotomy should be done at the time.

Now we come to the larger group of cases in the course of an acute purulent otitis media in which indication for a mastoid operation is also a relative one, depending upon the experience and judgment of the surgeon and his diagnosis of the pathology present from the interpretation of the clinical findings. Many of these cases are seen at varying periods from the onset of the acutely running ear, and the interpretation of the findings will therefore afford a different angle than those cases which are seen and observed or treated from the onset of the acute purulent otitis media.

It is always a good rule to take a culture of the discharge of the middle ear at the time of paracentesis, before we are confused by the secondary infection which is added soon afterwards. The information gained is often of great importance in deciding upon the time for mastoid drainage. This is particularly true in the hemorrhagic type of mastoiditis caused by the *Bacillus influenza* or the *Streptococcus hemolyticus*. In this type of infection the patient is greatly prostrated from the onset, the temperature is high and septic and the discharge from the middle ear is sanguinous but not under great tension. Pain is intense while tenderness over the mastoid antrum, tip, or emissary vein is marked. These symptoms and signs indicate a blood stream infection, which, contrary to the belief of some, nevertheless very often get well under careful local treatment, rest in bed, alkalization and forced fluid intake. If under such management the general condition becomes worse or if there appears a marked edema over the mastoid process and evidences of metastatic in-

fections in the joints or elsewhere in the body, indicating lateral sinus involvement, the mastoid operation should be performed, the lateral sinus opened and the jugular vein tied off.

A mastoid operation is indicated when the middle ear suppuration is not favorably influenced by good drainage on paracentesis, cleansing and rest in bed. In uncomplicated cases of acute purulent otitis media, the marked symptoms and signs subside in a few days under adequate treatment. However, the persistence of high temperature, marked decrease in hearing, pain, especially severe enough to interfere with sleep, continued discharge with no tendency to diminish, and increased general toxic condition of the patient call for operative interference. In infants and young children the persistence of a high temperature for a week or ten days after paracentesis is not unusual and should be no cause for alarm. However, if there is a sudden rise in temperature after a recession or if the temperature continues to rise after good drainage is instituted, an extension of the process is evident and a mastoid operation is indicated. Yet, because of the thin mastoid cortex in infants and children, favoring the formation of a subperiosteal abscess if the infection progresses, renders waiting less hazardous in these cases. This is particularly true in the cellular type of mastoid since the line of least resistance to a progressing middle ear suppuration will lead the pus to the outer wall of the mastoid under the periosteum. The acellular types tend to produce chronic infections or complications if the process is severe and allowed to continue. It is of value, therefore, to have an x-ray of both mastoids. Often, under good drainage, rest in bed and general care, an acute middle ear suppuration in an adult with an acellular mastoid will get well. However, this ebriation of the mastoid renders subsequent infection dangerous by virtue of presenting a dense barrier of bone against the infection reaching the outer surface. Because of such a barrier, the infection, extending by way of least resistance, may involve intracranial structures. Therefore, with a history of previous, severe middle ear infections and the x-ray corroboration of ebriation of the mastoid cortex one should institute posterior drainage early.

The otoscopic picture gives us much informa-

tion as to the progress of the purulent process of the middle ear. If after paracentesis there develops sagging of the posterior superior canal wall which continues or increases, rendering the canal smaller, it indicates that the process has extended beyond the confines of the middle ear and involves the periosteum of the posterior meatus. The discharge from the middle ear may not be profuse with such a picture but the marked continuous pulsation of the secretion indicates great edema of the mucosa of the middle ear which favors retention of the purulent secretion behind it—in the antrum and mastoid cells. In some cases there is no decrease in the amount of the secretion from the middle ear in spite of rational local treatment for a week or more after paracentesis. The pus fills up the canal as fast as it is wiped away. It is evident that such a great amount of discharge cannot arise from the tympanic cavity alone and that the antrum and mastoid cells must be involved. With sagging of the posterior canal wall, pain with tenderness over the mastoid there is more than enough evidence for a mastoid operation. An x-ray will show cloudiness and destruction of the mastoid cells.

When the causative organism is the Friedlanders bacillus or when the patient has diabetes, a similar type of mastoiditis may arise. This type is characterized early by the slight constitutional symptoms, absence of pain or tenderness of the mastoid, and a profuse thick creamy or mucoid discharge exuding from the auditory canal. An x-ray reveals a general clouding and obliteration of the intercellular walls of the mastoid. It is evident that a mastoid operation is indicated early in this type of infection. This melting away of the mastoid cells occurs early and intervention is therefore imperative.

In infants there is another condition that demands an early mastoid operation. These are the cases of cholera infantum or marasmus, a feeding disturbance which is often associated with mastoid infection. The toxic condition of the infant is great and the death rate is high. It is therefore important especially in the absence of any other focus of infection to perform the mastoid operation early. Otoscopic findings may be misleading as the short wide Eustachian tube often affords sufficient drainage from the middle ear and antrum to avert a perforation

of the drum. However, there are usually some otoscopic signs as dullness of the drum membrane or sagging of the posterior canal wall near the drum.

Another group of cases often present themselves for consideration in the early stages of acute middle ear suppuration in which there is little or no improvement in the condition after a month or six weeks of treatment and there are no grave signs which demand immediate mastoid operation. Here the danger of marked impairment to the hearing and the development of the process into a chronic one is imminent and must be controlled. If the tonsils and adenoids have been removed, posterior drainage is indicated. If the adenoids and tonsils are present their removal is indicated at the end of four weeks. This is often followed by a rapid restoration to normal of the middle ear infection. If there occurs no improvement in two or three weeks after the removal of the tonsils and adenoids, posterior drainage is indicated.

Early intervention by posterior drainage is also indicated when the good ear of a patient whose hearing is greatly impaired in the other, becomes the seat of an acute purulent otitis media. One might consider conservative treatment for a short time but an early operation to save the hearing of the only good ear should not be postponed too long. Also, if a patient suffering from a double acute purulent otitis develops a mastoiditis in one ear, posterior drainage should be considered for the other ear as well. A bilateral mastoidectomy in a bilateral acute purulent otitis media may also become imperative when an arising complication, demanding intervention, like a lateral sinus thrombosis or meningitis, does not point to one or the other ear.

Summary. A simple mastoid operation is performed under the following conditions, where:

1. Abscesses of the soft tissues arise after breaking through the bone or when an intracranial complication arises in the course of an acute suppurative middle ear infection.
2. Facial paralysis is a relative indication for a simple mastoid operation depending upon the course of the middle ear suppuration per se, but becomes absolute when bone necrosis is evident.
3. The persistence or increase of pyrexia, leucocytosis, pain and headache, decreased hear-

ing and discharge after local drainage and general treatment has been instituted.

4. Middle ear suppuration complicated by diabetes and those due to Friedlander's bacillus in which profuse discharge, corroborated by x-ray findings, indicate antral and mastoid cell involvement.

5. In infants when the condition of marasmus or decomposition is due to middle ear and antral disease.

6. In order to avoid chronicity in cases of acute middle ear suppuration which show no evident improvement after six weeks of meatal treatment and the removal of adenoids and tonsils produce no immediate improvement.

7. Cases in which a severe acute middle ear suppuration involves the only good ear of a patient.

8. Both mastoids are operated upon at the same time in a bilateral acute otitis media when, under good local and general treatment, one ear develops a mastoid involvement, or when an arising complication does not point to one or the other ear.

DISCUSSION

Dr. Harry Pollock, Chicago: I want to congratulate the writer. In my estimation, this is almost a classic; it is one of the best papers I ever heard on this subject, as he has gone into detail. There are only one or two statements that I did not quite agree with him and which he did not make quite as specific as he might have.

In the first place, I think in these early cases of acute otitis when we have a facial paralysis, there is a relative indication of opening the mastoid, at least for an antrotomy. The Doctor said that in some of these cases that come on early, sometimes preceding the discharge from the ear, he performs an antrotomy. I have always been of the firm belief that a facial paralysis is an absolute indication for antrotomy in these cases.

Another thing he did not make clear is the *time* in which there is a relative indication. Toward the end of his paper he stated something regarding the time after the tonsils and adenoids had been removed, but I believe in these cases in which we have a profuse suppuration that continues after three weeks with a slight elevation of temperature and with very little symptoms there is an absolute indication for an opening of the mastoid cells.

I read a paper in Memphis last year in which I stated that the pathology examination demonstrates that it takes about three weeks after the onset of the disease for the destruction of the intratrabecular cells. So after three weeks if there is not a diminution in the dis-

charge, I think it is an absolute indication for an antrotomy. Before that time in these cases in which there are symptoms that almost lead us to believe an operation is indicated, I believe we should wait, as the essayist stated, because all the bad results I have seen in mastoid operations are those cases which have been operated on too early. We all see cases that have been operated on as early as the second or third day, and in our experience we have had nothing but bad results on those cases which have been operated on in less than three weeks, unless, as has been stated, there is an absolute indication, intracranial complications, facial paralysis, meningitis, and so forth. I do not think anyone will differ concerning the indications for those classical cases. In cases in which there is some doubt we should not operate. I think three weeks after the x-ray, without any other symptoms, without an increase of the suppuration, there is absolute indication for operation.

I again want to congratulate the Doctor. I think I voice the sentiments of all to say that is about as classical a paper as I have heard read for a long time.

Dr. S. Salinger, Chicago: I should like to call attention to one omission in this paper and that is with reference to the blood picture. There are a great many cases in which the surgeon is in doubt in which the blood findings will give him the right clue. I do not recall hearing Dr. Muskat mention that. In the presence of a falling white count and in the presence of a white count in which the polynuclear cells are increasing proportionately, and the lymphocytes, diminishing, and especially in the presence of an increase in the percentage of young cells, you have an absolute indication for a mastoid operation, because statistics have all proved that in these cases there is a process which is extending and which is very likely to result in complications; and regardless of the period or the duration of the suppuration, this blood picture, which is typical, is very important.

Another point which Dr. Muskat mentioned and on which I think there is some room for debate is the indication for doing a mastoid operation in the presence of labyrinthine irritation. By labyrinthine irritation I think he means a perilabyrinthitis or a circumscribed labyrinthitis. It seems from investigations by men such as Zange and Rutten that they set this condition down as being a very definite indication for operation for simple mastoid.

Dr. S. M. Morwitz, Chicago: In the December, 1920, *Annals of Otology, Rhinology and Laryngology*, there appeared by me a paper on facial paralysis associated with otitis media. In that paper, after an extensive study of the literature and a report of three cases of my own, I came to the conclusion that facial paralysis itself was not an indication for mastoid operation, that the condition of the ear, per se, was what warranted mastoid operation. I showed cases that had improved, that had been completely cured in the presence of facial paralysis where the ear itself clinically did not indicate a mastoid operation. So I would say

that facial paralysis is not an indication for mastoid operation unless the ear itself indicates such.

Dr. C. D. Sneller, Peoria: I should like to ask a question regarding the eosinophilia in a case of a mastoid having bony destruction present. Sometime ago an article appeared in one of the journals regarding the presence of eosinophilia when there was sufficient bone destruction which might warrant an operation on the mastoid. I wonder whether there is any value to that finding and whether there is any more information occurring in the literature regarding it.

Dr. I. Muskat, closing: Dr. Pollock has unintentionally misinterpreted my statements regarding facial paralysis. I may again state that facial paralysis coming on early in an acute suppurative otitis media may be due to a toxic neuritis or pressure of exudate on the nerve. Here antrotomy is not absolute but relative and is not performed where the middle ear process rapidly improves under local and general measures. When the middle ear infection progresses or when other indications for antrotomy arise, the mastoid operation should be done. Such a conservative stand is advocated further because early antrotomy in an acute middle ear infection is not a safe procedure.

The question of antrotomy at the end of 3 weeks or later is a matter of each individual case. I do not believe a definite period of three weeks makes the indication for posterior drainage absolute. After 6 weeks of middle ear suppuration the development of a chronic ear is an important consideration; before 3 weeks, without imperative indications, antrotomy is not indicated. As many subacute middle ear suppurations without urgent symptoms or findings are perpetuated by infected tonsils and adenoids, their removal within the third and sixth week may terminate the infection. The value of such conservatism is obvious.

Dr. Salinger spoke about the blood picture as an index for operation. Although one should not ignore the blood picture which gives a relative index between infection and resistance, it should not in any wise replace the interpretation of the ear finding per se. In regard to the operative interference in the advent of labyrinthine involvement, one should be guided by the cerebrospinal findings and clinical course as outlined in this paper and not jeopardize the patient's life by dogmatic mastoid indications.

RECTAL ANESTHESIA WITH TRIBROMETHYLALCOHOL (AVERTIN)

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CHICAGO

In three previous communications on Avertin I attempted to give a comprehensive description of this subject. In those papers the drug was described and a resume of various papers emanating from the German literature, as well as my experience with the drug was epitomized. It is

now well over three and one-half years since I, for the first time, became acquainted with this anesthetic. This paper will deal with my experience of over 525 cases, both here and abroad, in Professor Sudeck's Clinic, Hamburg, Germany. Avertin is gradually gaining favor both with patient and surgeon, and as experience in the drug is lengthened, so are the pitfalls of failure as well as danger obviated. For my part, there were no deaths which could be attributed to the anesthetic. Complete anesthesia was to be had in 80 per cent. of cases, whereas the remainder required some supplementary anesthetic, such as ether, gas, local, etc. Besides its use in surgery, it was also tried in cases of tetanus, eclampsia, gastric crisis.

Anesthesia, whether local or general, has always and will continue to be a factor in surgery. Just what type is to be used is still a great problem to the surgeon of today. When one eliminates the use of local anesthesia, the remaining general types of anesthetics are far from satisfactory. Until recently the use of such orthodox anesthetics as ether, gas, ethylene, etc., has and continues to be a dreaded horror to the patient. This is due to the mannerism of induction of anesthesia and also the awakening.

The desirability of rectal anesthesia, especially in surgery of the head and neck, and in presence of pathology of the respiratory tract, requires no comment. In the past, the rectal use of ether in oil, alone or in conjunction with morphine and magnesium sulphate, after the method of Gwathmey, has not become popular as an anesthetic. Undoubtedly, this has been due to the fact that some difficulty was encountered in the proper preparation of the ether in oil, and its uncertain rate of absorption from the intestinal tract with consequent variability in the resultant depth of the anesthesia. Recently there has been elaborated by Willstater and Dursberg of the I. G. Farhein Industries in Germany, a new rectal anesthetic, that bids fair to supplant ether in rectal anesthesia.

Chemically, tribromomethylalcohol is a white crystalline substance, whose melting point is 79° C-80° C and is soluble in a 3 per cent. aqueous solution at 40° C, care being taken that it is not heated above 45° C, when it has a tendency to break down into dibromacetaldehyde, which is

very irritating to the rectal mucosa, going so far as to cause necrosis and gangrene.

Avertin is absorbed much faster than water, as shown by Straub. Lebening found it to be in a concentration of 6-9 mg. per cent. in the blood during anesthesia. Excreted in combination with glycuronic acid through the kidneys, Straub found that this amounted to 99 per cent. Traces of bromine were also found in sweat and none in the respired air and feces.

The rapid absorption of avertin results in sleep usually within ten minutes without any period of excitation. They awake symptomless, having no nausea or vomiting, as though they have been awakened from a deep sleep.

There is a slowing of respiration which can be improved if necessary by the use of lobelin, caffeine, $C O_2$, etc. Killian has shown that when an overdose of avertin is given in animals its respiration is readily improved by the use of $C O_2$. The respiratory center is early affected. Cyanosis and pallor were observed in a few instances, but should only cause alarm when it deepens very greatly. Straub states that although the rate of respiratory movements are decreased its volume is increased.

The action on the blood pressure causes a decrease in systolic blood pressure of 10-20 m., but no apparent effect on the diastolic, and overdose results in collapse which can be usually controlled by the use of ephedrine. With the aid of electro-cardiograph, Ungar and May have shown no apparent effects on the heart before, during and after state of anesthesia. The pulse rate is increased although rarely over a 100, but remains the same quality.

Repeated doses amounting to 165 gr. within 13 days showed no apparent injury to a patient of mine who recovered from tetanus. One can readily appreciate its safety by comparing the therapeutic index of avertin, which is .17 to that of ether .12 and chloroform .09. It is the safest anesthetic known, with the exception of amylhydrate.

The drug is safely dissolved in H_2O at $40^\circ C$ so as to make a 3 per cent. solution. The dose varies from .05 to .18 grams per kilo of body weight, the larger dose used in children. It has been the practice to reduce the dose in the presence of large abdominal tumor ascites and poor risks.

As a rule, a total dose of .13 grams per kilo of body weight has given a good anesthetic with pleasing surgical relaxation. In some instances an additional dose of .025 grams per kilo was given when a patient was poorly anesthetized and did not relax properly.

A few cases will require in addition to the above, some ether, ethylene, etc., inhalation and this has been the experience of others as well as myself. The anesthetic will last about three hours and may be shortened by emptying the bowel and the use of cleansing enemas.

Florchén and Mues of the Marien Marien-Krankurhaus in Frankfort report that 80 per cent of their cases evidence good surgical anesthesia when doses above .13 gram per kilo were used and the percentage decreased, with a decrease in the dosage. In the cases in which .10 grams per kilo was used only 60 per cent showed a good anesthesia. This has been our experience as well. I have modified the method of introducing this rectal anesthesia by giving it in divided doses until the desired state of anesthesia is reached. By this method one can start by inducing a stage of analgesia and if this is not satisfactory, increase the amount of anesthetic given until a complete state of anesthesia has been reached.

The anesthetic is indicated in practically every type of surgical procedure, but will probably find its greatest sphere of usefulness in surgery about the head and neck in which great difficulty is encountered in using the orthodox inhalation anesthesia. It has been employed in brain and goiter surgery, thorocoplasty, breast resection, laminectomy, gastric surgery, appendectomies, hernias, amputations, tetanus, eclampsia, gastric cases, etc., with pleasing results.

No unpleasant after effects were noted. No headache, no post-operative nausea or vomiting were evidenced. Post-operative lung complications, bronchitis and pneumonia, were not so evident. No ill effects attributable to the anesthetic have occurred, in our experience. The post operative care as far as the anesthetic was concerned was merely flushing out the lower bowel with several liters of H_2O .

ADVANTAGES IN SURGICAL CASES

1. Perfectly quiet induction of anesthesia without unpleasantness.

2. The patient may be unaware that the anesthesia is being induced.

3. Quiet respiration, which facilitates intra-abdominal and some other operations, particularly radical amputations of the breast.

4. Post-operative sleep from three to six hours duration with more or less loss of memory for events, especially painful events, which occur during this period of sleepiness.

5. Absence of psychic condition of the patient through anxiety of the fear of anesthetic.

6. Reduction of post-operative pneumonias to practically nil as well as bronchitis.

7. Absence of post-operative nausea and vomiting. In all patients whom we have anesthetized with avertin (some of them had undergone various previous operations and one patient had forty different kinds of anesthetics) are unanimous in saying that there is a striking contrast between the comfort realized under avertin and the discomfort which follows the use of other anesthetics. All patients who have heard or had been given this anesthetic request the use of it for themselves.

DISADVANTAGES IN SURGICAL CASES

1. Labile chemical constitution makes it liable to decomposition with the formation of the highly toxic, and irritant diacetylaldehyde. This can be avoided by testing 5 C C of the solution with two or three drops 1:1000 Congo Red solution. The solution should not change color, and if it turns bluish, the solution should be discarded, as it shows that there has been a breaking down of the avertin.

2. Its rapid rate of absorption from the intestinal tract permits the flooding of the patient of a toxic dose that cannot be removed. This can be eliminated by giving smaller doses at a time.

3. Loss of the pharyngeal reflex allows the blood to trickle into the lungs, which may cause asphyxia. Drs. J. C. Beck and M. R. Guttman have stressed this point so as to exclude nasal, tonsillar and other operations in which there may be the fear of free blood going down the trachea.

4. Unless the patient is turned on the side or an airway is inserted there is a tendency to obstruction to respiration by the tongue falling back.

5. The patient's chin should be drawn up-

ward and forward so as to prevent the epiglottis from falling backward and causing asphyxia.

6. Experience must be had with the knowledge of the various effects of this drug on the human being. For this reason, it is well to forewarn that many will have failures and others will have deaths, because of lack in clinical experience.

In conclusion, it might be stated that while the last word on tribromethylalcohol has not yet appeared, it approaches the ideal anesthetic more closely than any other at our present command.

This anesthetic, no doubt, will open up an entirely new field of interest in rectal anesthesia. Every time we use this anesthetic we learn more of its characteristics and avoid complications.

It appears that this drug will probably occupy a highly important place in surgical anesthesia of the future. Especially on account of its ease to combine with other anesthetics when sufficient relaxation is not obtained.

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COMPLICATIONS AND TREATMENT OF VARICOSE VEINS*

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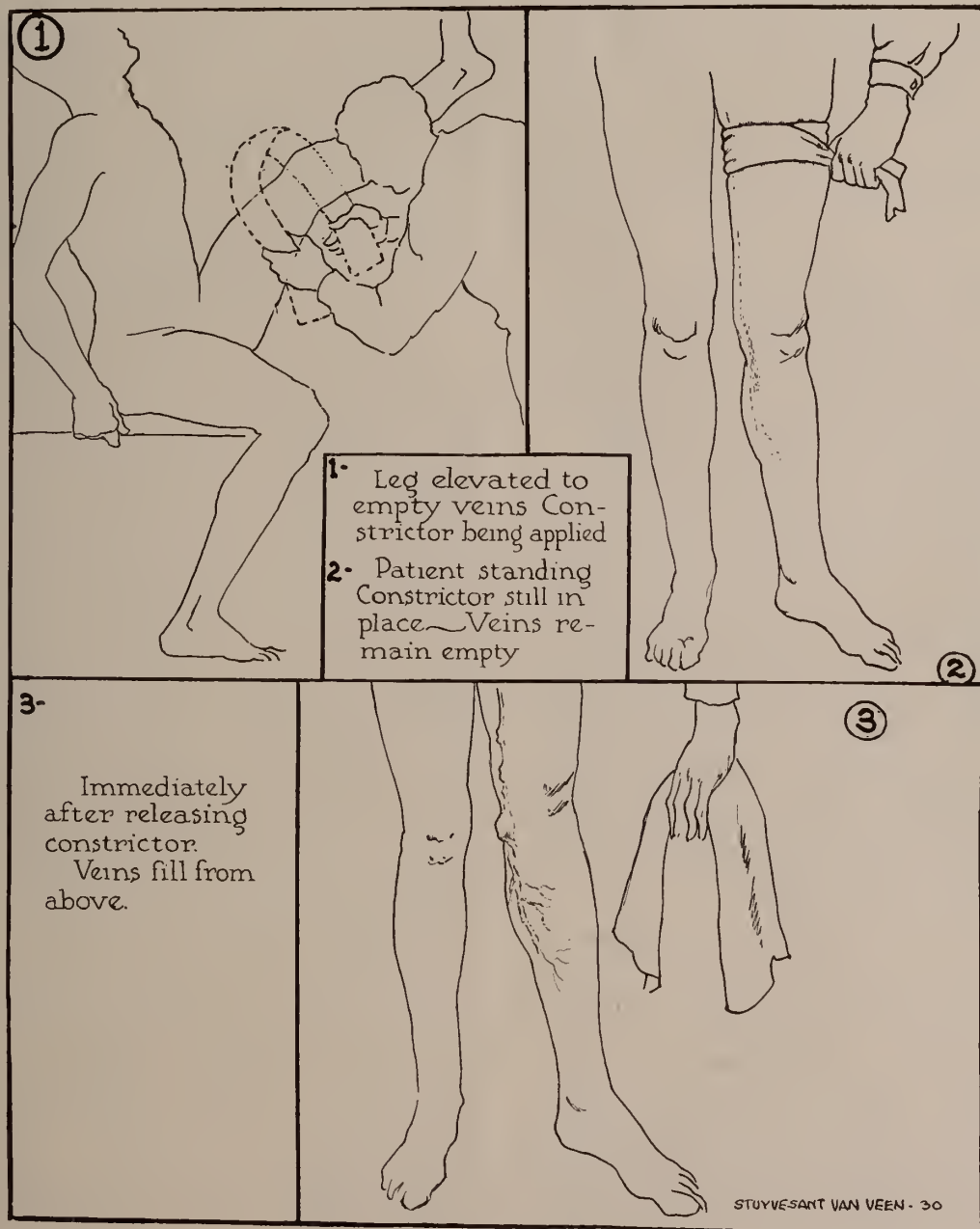
The development of the injection treatment of varicose veins as a safe, effective and expedient therapeutic measure has done more than give relief to thousands of sufferers and promise of future relief to many more. By supplying the physician with an efficient means for combatting the disease and its disagreeable complications, it has made interesting and desirable a group of patients which were formerly the despair of physicians and the bane of out-patient clinics. As a result, we have seen the development of large clinics devoted to the treatment of patients with circulatory disturbances of the extremities, and a renewed interest in the study of these conditions. Consequently, it is only reasonable to expect advances in our knowledge of these diseases and an earlier understanding of the true nature of varicose veins and the significance of their complications. The interchange of opinions and

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observations is to be welcomed, in order that perfection of technique and discovery of an ideal sclerosing agent may be more rapidly approached. I propose to present here the impressions gained and the methods used in the Clinic for Vascular

Anatomy and Physiology. Reviewing for a moment the underlying anatomy and physiology involved in varicose veins, it will be recalled that the venous return from the lower extremities is effected by means of two groups of veins, a



Trendelenburg Test

Diseases of the Department of Surgery of Northwestern University Medical School. This clinic has been in operation for somewhat over three years and several reports of the work that is being done have appeared from time to time.

superficial and a deep. The deep veins, consisting of the femoral, popliteal and anterior and posterior tibial veins and their tributaries lie beneath the deep fascia and are surrounded by the powerful muscles of the legs. Because of

the support afforded by these muscles, these veins cannot dilate under pressure. Moreover, the pumping action of the muscles in walking insures adequate emptying of the veins. For these reasons, varicosities of the deep veins practically never occur. The superficial veins consist of the greater saphenous vein and its tributaries, which collect the blood from the dorsum of the foot and the inner aspect of the leg, ascend on the inner side of the leg and thigh, and dip down through the saphenous ring to join the femoral vein; and the lesser saphenous, which drains the back and outer side of the leg and usually joins the popliteal vein at about the level of the knee. These veins, which lie superficial to the deep fascia, are imbedded in the subcutaneous fatty tissues and lack both the support and the pumping effect of surrounding muscles. They are very apt to yield under excessive pressure, dilating into the form of varicosities.

The greater and lesser saphenous systems are united by a rich network of anastomoses. In addition, there are communications between the superficial and deep veins in the form of perforating veins. These are variable in number and location and are equipped with valves which permit the flow of blood from the superficial to the deep veins, but do not permit it from the deep to the superficial. The saphenous veins, too, are supplied with valves which permit flow only from below upward. It is upon the integrity of these valves and the strength and elasticity of the vein walls that the normal function of the superficial veins depends.

Etiology and Pathological Physiology. We recognize two types of varicosities. The more common type, which comprises perhaps 95% of all which come for treatment, is the chronic form in which gradual dilatation and enlargement of the veins occurs over a period of years. While the exact cause of the condition is unknown, we are inclined to look upon it as being largely mechanical; that is, the pressure on these particular vein walls is greater than they are able to withstand. We feel that hereditary factors probably play a role here, since many of these patients give a family history of varicose veins. Many also present other evidences of weakness of the venous and ligamentary structures, such as hemorrhoids, varicoceles and flat feet. Any additional conditions which increase the pressure

within these veins are contributing factors. Among these may be mentioned pregnancies, occupations requiring long standing, abdominal tumors, constricting clothing and chronic coughs. In such limbs there is gradual dilatation of the veins with secondary insufficiency of the valves. As each successive valve yields, the pressure on the next in order is increased. Later, inflammatory and degenerative changes make their appearance. Usually the insufficiency is limited to the valves in the saphenous veins while the communicating veins retain their normal function. By virtue of this fact, extreme degrees of varicosity are compatible with fairly adequate circulation of the superficial tissues of the leg.

The second type of varicosity follows a phlebitis of the superficial veins of the extremity. The inflammatory process, which often follows operation, childbirth or infectious disease, sweeps through the length of the vein, destroying all of the valves. Thrombosis is followed by canalization and the vein is converted into a firm, thick-walled valveless structure, which permits a much greater degree of regurgitation than do the extremely dilated, tortuous varicosities of the first type. Furthermore, the inflammatory process may also involve the communicating veins with a consequent crippling of their valves. As a result, the circulation is greatly impaired because of the simultaneous regurgitation through both the saphenous and the communicating veins. These limbs often display the most extensive and intractable ulcers which may be associated with little or no visible varicosities.

Circulatory Tests. The clinical study of patients with vascular disturbances of the extremities should enable us to differentiate between lesions due to arterial disease and those of venous origin. We emphasize the importance of this differentiation. In addition to a general examination of the circulatory system the condition of the arteries of the part should be noted, and in doubtful cases, x-ray and the histamine test should be employed. The physiological status of both the superficial and the communicating veins is then determined by means of the Trendelenburg and the Perthes tests. The Trendelenburg test is done in the following manner. (Fig. 1) The limb is elevated above the level of the body in order to empty the distended veins, and a constrictor is applied about the thigh. The patient

is then permitted to stand up. In the normal leg, with the constrictor in place, the veins fill slowly from below, usually requiring from 45 to 60 seconds for filling to occur by way of the capillaries. If the constrictor is removed suddenly, there is no visible downward rush of blood in the saphenous vessels. This state, indicating normal function of the valves in both the saphenous trunks and in the communicating veins is designated as a *negative Trendelenburg test*. If, when the constrictor is removed, there is a visible and palpable downward rush of blood in the saphenous veins, it indicates that the valves in the saphenous trunks are incompetent, and that the direction of flow in these veins has been reversed. This is termed a *positive Trendelenburg test*. If, in addition, the valves in the perforating veins are incompetent, the veins will fill rapidly from below while the constrictor is still in place. When this filling occurs within 30 seconds, it is usually indicative of regurgitation from the deep veins by way of the perforating veins. This condition is practically always associated with incompetence of the saphenous valves, and such a test would be called a *Trendelenburg doubly positive*.

Great importance is usually attached to the testing for patency of the deep veins. Although we feel that the danger of deep vein occlusion has been overemphasized we routinely test for patency of the deep vessels, employing the Perthes test for this purpose. The constrictor is applied about the thigh while the patient is standing and the superficial veins are engorged. The patient then walks about or kicks the leg a number of times. Due to the pumping effect of the alternate muscular contraction and relaxation, the return of blood through the deep veins is facilitated, and if these are patent the veins will empty. A variation of this test is to determine whether the veins will empty by gravity when the limb is elevated, while the constrictor is still in place. Since such emptying cannot take place through the superficial veins, it must indicate the deep veins are patent. The deep veins are usually found to be open even though there is a definite history of deep vein phlebitis, except in cases with marked edema. In a general way, if the Trendelenburg test is positive, it is safe to assume that the deep veins are patent, because the absence of edema indi-

cates that there is more or less adequate venous return from the extremity. And if this return is not taking place through the superficial veins, it must be by way of the deep veins.

Complications. In addition to the unsightliness and discomforts directly caused by them, varicose veins are attended by a train of complications which further distress the patients afflicted, and which demand prophylaxis and treatment. The complications most frequently observed in our clinic are phlebitis, ulceration, eczema and hemorrhage. A possible relationship of these complications to one another will be pointed out.

Varico-phlebitis. Inflammation of varicose veins is probably the most frequently observed complication, and in most discussions of the subject, does not receive the attention it merits. While phlebitis in a normal vein is usually an acute stormy disease with chills, fever and swelling of the part, phlebitis in a varicose vein is a relatively mild condition. There are usually no general symptoms, the patient complaining only of slight pain and tenderness over the involved vein segment. In some of these cases the inflamed vein is palpated as a firm, indurated, tender cord. In others, there is a round or oval area of redness, induration and tenderness extending for a variable distance around the phlebotic area. These so-called *thrombo-phlebotic patches* really constitute localized areas of superficial cellulitis going out from inflamed veins. When the inflammatory process subsides, there is often residual pigmentation and induration, with fixation of the skin to the subjacent tissues and atrophy of the integument. These are the regions of impaired resistance which we feel are potential sites of eczemas and ulceration, and because of this predisposition, are of great significance in the evolution of the disease.

Eczema and Ulceration. These are distressing and often, disabling complications. The former is much more frequently encountered than most text-books would indicate, and arises, apparently, from the impairment of the superficial circulation by the varices. Varicose ulcers may be of two types. The more common are intimately associated with a varicose vein, and are said to "ride" on the varix. These ulcers probably result from slight trauma or infection of the skin over one of the pigmented, atrophic patches de-

scribed above, and owe their genesis, therefore, directly to the previous inflammation of the subjacent vein. The second type of varicose ulcer is the result of the post-phlebitic type of varicosity, in which there is regurgitation through both the saphenous and the perforating veins. These are often the most extensive and intractable of all ulcers and they are often unaccompanied by visibly dilated veins. The saphenous trunk may be palpated as a firm, somewhat thickened cord. A history of phlebitis is usually obtained from such patients and, as a rule, the Trendelenburg test is found to be doubly positive.

Hemorrhage. Bleeding from varicose veins is an infrequent complication in our clinic. It occurs from the erosion of a superficial varicosity by trauma or inflammation. While the blood loss may be considerable, it rarely assumes threatening proportions. It is usually readily controlled by pressure, although occasionally we have found it necessary to pass a suture through the skin, transfixing the offending vessel. Subsequent obliteration of the vein will prevent recurrence of the bleeding.

TREATMENT OF VARICOSE VEINS

As was pointed out above, when the Trendelenburg test is positive, the direction of blood flow in the superficial veins is reversed. These veins, then, not only do not assist the return circulation from the extremities, but actually impede it. All of the venous return, including that which regurgitates through the incompetent saphenous channels, takes place by way of the deep veins. If the deep vessels were freed from the handicap of the back-flow through the superficial veins, they would be able to maintain a return circulation more nearly approaching the normal. This constitutes the philosophy of all surgical treatment for varicose veins.

We have two methods at our disposal for the destruction of varicose vessels, the older radical excision and the more recent chemical obliteration by injecting sclerosing substances into their lumen. Supportive treatment by means of bandages or elastic stockings is purely palliative in character, and can in no way be expected to lead to a cure of the disease. The two methods of surgical treatment mentioned must, to a certain extent, supplement one another. Where the same result may be obtained from either, ob-

viously, the injection method should be preferred. It has the advantage of being ambulant throughout, thus saving the patients the loss of time and the expense of prolonged hospitalization. It spares them the risks and discomforts of a major surgical operation, and the dangers of wound infection as the result of extensive dissections through tissues whose resistance is impaired by deficient circulation and chronic inflammation. Healing is unattended by multiple, disfiguring scars, and finally, if new veins should form, it is a simple matter to give a few additional injections whereas it would probably be difficult to induce the patients to return for additional excisions should the first prove inadequate.

In our clinic, the veins in approximately 90% of the patients are treated by the injection method alone. In an additional 10% the injections are combined with ligation of the saphenous trunk at its highest palpable point. The ligations are done whenever there is a huge dilatation of the long saphenous vein extending upward beyond the middle of the thigh. We feel that they not only add to the safety of the subsequent injections, but that also, by temporarily interrupting the pressure within the veins, they greatly minimize the number of injections required to produce complete obliteration of the varicosities. The ligations are also part of the ambulant treatment. They are done in the clinic, under local anesthesia, and immediately afterwards the patients are permitted to be up and about and to resume their ordinary activities.

In those patients with doubly positive Trendelenburg tests, comprising chiefly the post-phlebitic cases, and constituting perhaps $\frac{1}{2}\%$ of all patients presenting themselves for treatment, injections are given, but in a tentative manner. The prognosis for cure by injections alone is not good, and as long as the incompetent perforating veins remain, recurrences must be expected. In these patients, if the injections fail, we advise total excision of the dilated superficial veins. This entails removal of the long saphenous trunk in the thigh, by stripping if desired, and complete dissection of the veins of the lower leg including the perforating veins. Only by this means can cure be achieved in these subjects.

TECHNIQUE OF THE INJECTION TREATMENT

Choice of solution. The treatment by injection depends upon the introduction of an irritant within the lumen of the enlarged vein, producing a chemical inflammation of its wall with subsequent thrombosis, organization and permanent occlusion of the vessel. Many solutions have been used for this purpose, none of which, however, has been found entirely satisfactory. The ideal solution should be non-toxic and irritant enough to obliterate the vein, but it should not be sufficiently irritating to cause excessive pain or too great danger of producing a slough if extravasation into the subcutaneous tissues occurs. In our clinic, we soon learned that sodium chloride and sodium salicylate solutions were too irritating. They caused excessive pain, and the danger of sloughing was emphasized by those who had used them. The salicylate had the further disadvantage of being a toxic agent, and occasionally persons are encountered who have an idiosyncrasy to the drug, so that reactions may occur with even the small quantities that are used in this work. For some time, we used 50% glucose solution almost exclusively. This solution is, in many ways, preferable to all others known. It is the least irritating of all that are commonly used as sclerosing agents, causing a minimum of immediate pain and cramping after the injection, and will not cause necrosis if it inadvertently escapes into the cellular tissues. General toxic reactions, of course, will not occur. On the other hand, its very lack of irritation constitutes its chief drawback. While it is strong enough to obliterate a certain number of varicose veins, too often, it fails to produce the desired result. For this reason, stronger solutions were sought. Quinine and urethane proved quite satisfactory. It is obtainable in convenient 2 cc. ampoules, is a thin liquid which can be injected with a small syringe through a fine hypodermic needle. Small quantities are required for a single treatment and the local anesthetic action of the solution greatly minimizes the pain following the injection. The results obtained are good, most veins responding to this solution. There is, however, one serious disadvantage to quinine and urethane. It is a drug, more or less toxic, to which certain persons exhibit a special idiosyncrasy. A certain, not inconsiderable proportion of patients treated

with it display some general reaction. Usually this is mild, consisting of transient precordial pain, flushing, headache, giddiness or nausea. Occasionally more severe reactions are encountered. For this reason we have limited the use of quinine and urethane to selected cases, and have attempted to find for routine use, a solution containing only physiological substances. At the present time we are using for most of our work, a solution containing equal parts of 30% sodium chloride and 50% glucose, giving as a rule, 5 cc. of the mixture at each injection. Both the glucose and the salt may be obtained in ampoule form, and the two solutions may be mixed in the syringe just before using. This mixture has proved the most satisfactory of any we have as yet employed. It causes some immediate pain and cramping after the injection, but this is transient, and is not severe enough to constitute a serious objection. If injected into the subcutaneous tissues, necrosis will occur. Used with care, however, it can be employed with a considerable degree of safety, and with satisfying results. It possesses several definite advantages. First, it only contains substances which are normally present in the circulating blood. Toxic general reaction is therefore not to be feared. By combining the too-active salt solution with the insufficiently active glucose solution, a happy medium is struck. And finally, it is flexible. The relative proportions of the salt and the sugar may be varied to suit the needs of the individual case, so that practically any vein can be obliterated with a proper mixture of these two solutions.

Method. The technique of the injection treatment is simplicity itself. No special apparatus or elaborate methods are employed. The solutions are mixed in the syringe, the skin over the vein to be injected is cleansed with alcohol, and the solution is injected. If the veins are sufficiently prominent, the injection is given with the patient in the sitting position, the leg held horizontal by a prop under the heel. If the veins are too small or too deep to be readily visible or palpable in the collapsed state, the injections are given with the patient standing. The needle is introduced into the vein, the plunger is drawn back to make sure there is a free flow back into the barrel of the syringe, and the fluid is injected. During the injection, the vein is emptied

by tensing the skin over it between the thumb and index finger of the left hand. Immediately after the injection, as the needle is withdrawn, a pad of orthopedists' felt is applied over the site of puncture to prevent extravasation through the needle hole, and is held in place with a strip of adhesive. During the momentary cramp that ensues, the limb is kept elevated, after which the patients are free to go about their affairs. As a rule, not more than two injections are given at one sitting, and usually, the treatments are repeated once a week. There is no rule as to which veins shall be obliterated first. Usually a prominent vein in the middle portion of the leg is selected for the first injection, then working in both directions until all of the veins are obliterated.

Results. Immediately after the injection there is usually a cramp passing through the leg, which lasts for 1 to 3 minutes, then disappears entirely. Later, a firm, solid mass appears at the site of injection, corresponding in extent, to the size of the obliterated segment. This may be tender to touch and often persists for several weeks. It gradually shrinks, and the obliterated vein is palpable as a firm, fibrous cord. The extent of vein obliterated with a single injection varies greatly, ranging from a fraction of an inch to 6 or 8 inches. If obliteration does not occur, the same site may be re-injected, using stronger solutions if necessary. The number of injections required for the obliteration of a given case of varicose veins will vary of course, depending upon the extent of involvement and the response to treatment. In our experience, with all types of varicosities, the average number of treatments required has been between 6 and 8. With properly selected solutions and a sufficient number of injections, most varicose veins can be brought to obliteration. As to late results, it is too soon to make positive statements. Careful follow-up records are being kept of our patients, and in time we hope to be able to answer this question. Our impression thus far is that the destroyed veins do not re-open. The factors producing the condition, however, are usually still acting, and the formation of new veins may occur. Should this happen, they can be readily obliterated by a few additional injections.

Contra-indications. We recognize only one absolute contra-indication to injection for the obliteration of varicose veins, that is, active inflam-

mation in the vein. In the presence of such a phlebitis, we employ conservative measures only, usually applying the Unna's Paste boots. Several weeks or months after all evidences of inflammation have disappeared are allowed to elapse before injections are begun. Old phlebitis of either the superficial or deep veins is not considered a contra-indication if the Trendelenburg test is positive and the deep veins patent. Advanced age is not a factor. A number of patients of seventy-five and over have been treated with excellent results. Heart disease, nephritis, diabetes or hypertension do not stand in the way. Nor does pregnancy contra-indicate treatment. We feel that pregnant women who have severe enough varicosities to produce discomfort, should be treated if seen early enough in the course of pregnancy. We are careful to avoid the use of quinine in these subjects.

Unfavorable Results following Injection Treatment. In the past 3 years, something over 600 patients have been treated in the clinic, and the total number of injections is in the neighborhood of 4,000. To date we have had no fatalities, and no serious complications or severe reactions. Embolism has not occurred. Occasionally, perhaps once in 200 or 250 injections, we see the so-called "chemcial" phlebitis extending upward for a varying distance from the site of injection. This phenomenon is unattended by fever or other constitutional reaction, and is characterized by the appearance of a firm, painful, tender cord ascending along the course of the vein. In none of our own cases, and in none described in the literature, has this process been seen to advance beyond the saphenous ring. We therefore view its occurrence with equanimity, feeling that the veins in these patients will become obliterated much more quickly than would otherwise be the case. The second, and really only significant complication, is sloughing of the subcutaneous tissues from extravasation of the injected fluid. This will occur occasionally, as in any other form of intravenous therapy with hypertonic solutions, but with the exercise of care, it should be seen very, very rarely. The incidence of sloughs, in our experience, has not greatly exceeded one per 1,000 injections, and none have assumed serious proportions. Usually they are not more than 1 cm. in diameter, and not very deep. Even these, however, are slow to heal, but no further consequence has been

observed in any instance. Since any solution sufficiently irritating to cause obliteration of the vein will cause necrosis of extravascular structures, the answer must be *care in injection*. The needle used should not have too long a bevel, otherwise part of the opening may be in the vein and part of it out. Injection should not be made unless there is a free backflow of blood into the syringe, and whenever there is any question, the piston should be drawn back as frequently as is necessary to dispel the doubt. Pain during the injection, of a stinging or burning character felt at the site of puncture, is a warning of probable extravasation that should never be disregarded. A finger tip on the skin surface over the point of the needle will also often detect beginning infiltration of the tissues from extravascular fluid. The prompt application of the felt pad after the injection is of service in preventing the leakage of injected fluid from the puncture wound in the vein. If ever there is the slightest question as to whether the fluid is going nicely into the vein, the injection must be discontinued at once. Only by this means can the incidence of sloughs be lowered to the irreducible minimum.

TREATMENT OF COMPLICATIONS

Phlebitis. Phlebitis in varicose veins is usually treated conservatively. In a few instances, we have ligated the saphenous trunk above such a process, with very satisfactory results. Usually, it is sufficient to place a pad across the vein, with an adhesive strip. When the phlebitis is below the knee, we usually encase the limb in an Unna's paste boot, to support the circulation and place the part at rest. Under this treatment, the phlebitis usually subsides within a few weeks. Injection is postponed in such veins, for a period of at least 3 to 6 months.

Eczema and Ulceration. Wherever local dressing is required, we employ the Unna's paste boot. This treatment is supplementary to the obliteration of the veins, and by the combination of the two, patients are given almost immediate relief from the pain and itching, and most ulcers may be brought to healing. We use a modification of the original formula of Unna, consisting of zinc oxide, 1 part; gelatine, 2; water, 3; and glycerine 4. This makes a softer, smoother paste, which hardens to a rubbery consistency. The paste is melted over a water bath, in individual metal containers, and is applied

directly to the surface of the skin, including the ulcer or eczematous area, with a broad, soft paint brush. A layer of gauze bandage is then wound about the limb, care being taken to avoid any kinks or twists in the bandage. If it cannot be smoothly applied without reversing, the bandage is cut and another spiral begun. Over the bandage a second coat of paste is applied, and then a second covering of bandage. The whole is anchored with adhesive. This forms an ideal local dressing which does not have to be renewed oftener than once each week, and which is most grateful to the patient.

CONCLUSION

The treatment of varicose veins by the injection of sclerosing solutions has been very widely accepted, and enthusiastic reports from all parts of the world proclaim the method efficacious, expedient and safe. It is particularly applicable to that class of patients who are most in need of it, and who were unable to procure the care required under the older forms of treatment. By bringing these patients in for early treatment, the distressing complications of varicose veins will be largely prevented. When complications are present, the combination of injection therapy and adequate local measures greatly accelerates recovery. Finally, the development of an effective method of treatment has stimulated medical interest in this condition. Instead of being sent from one clinic to another, these patients are now eagerly welcomed. As a result, we have seen the development of large clinics devoted to the care of these diseases. From this awakened interest and accumulating material, there is reason to expect a growth of knowledge as to the cause and nature of varicose veins and the source and significance of their complications.

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SMALLPOX*

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I feel that I have about exhausted my limited vocabulary in talking and writing about smallpox. Not that these have been voluminous. I should consider a statement imparting such an impression quite presumptuous on my part.

*Read before Illinois State Medical Meeting, Section on Public Health & Hygiene, May 22, 1930.

Many able men have written volumes on the subject, describing in detail all the known features of this disease.

It is over thirty years since I first began investigating smallpox. Since then I have continued in that practice more or less with the exception of two years. During this time, I have had a vast experience with the disease, smallpox. It would be a wild guess to say how many cases I have seen but 20,000 is a very conservative estimate. Notwithstanding this experience, I do not claim to be infallible in the recognition of this disease. Infallibility has no place in a vocabulary pertaining to diagnosis. Experience alone is the only means whereby one can expect to become what might be termed proficient in the diagnosis of smallpox. Reading and illustrations are an aid to diagnosis, but this applies more particularly to the typical cases and typical cases can be diagnosed very easily by most anyone who has read the books and seen the illustrations. In the atypical case neither reading nor observing illustrations will, in my opinion, lead to a very high degree of diagnostic efficiency.

A patient may have a smallpox infection accompanied by the most violent prodromal symptoms which subside without leaving behind the slightest eruption on the body. This illustrates a significant difficulty in convincing the laity and even some physicians of the seriousness of the case. When on the other hand, a very few eruptions appear, following a few days sickness, the attack is diagnosed as "grip." That non-eruptive cases of smallpox do appear sometimes has been proven by mothers giving birth to a child broken out with smallpox, when the mother was entirely free from any eruption. Of course this is proof positive, but I know of no other way by which a positive diagnoses could be made. I have seen a few cases of this kind in families where the disease existed. One member of the family would have violent prodromal symptoms which manifested themselves only to subside in three or four days with no eruption whatever. I could reach no other conclusion than that the illness was non-eruptive smallpox. These cases would have old vaccine scars which the patients had carried for many years.

There are many eruptive diseases which have been confused with smallpox. Some of them which have come under my observation are

syphilis, urticaria, erythema, measles and of course, chickenpox. I shall not take the time to attempt to differentiate between smallpox and each of them, but a few comments of the distinction between smallpox and chickenpox, the most frequent pair to be confused, seems proper.

Most authorities in the past have regarded chickenpox as essentially a disease of childhood. Dr. W. T. Corlett of Cleveland in his book "Acute Infectious Exanthemata," published in 1904, states that he has never encountered a case of chickenpox after puberty. Whether or not he still maintains this view I do not know. Dr. C. P. Thomas of Leipzig, also says he never saw a case of adult chickenpox, and some authorities believe that susceptibility to chickenpox diminishes after the tenth year of life, and ceases entirely after puberty. Dr. Welch says that on the other hand, there is no doubt that the disease is by no means uncommon among persons of mature life. He adds, moreover, that chickenpox doubtless would be more frequent in adult life, were it not for the fact that in the vast majority of persons, the susceptibility is destroyed by the occurrence of the disease in early childhood. I have been in perfect accord with these views for many years. That chickenpox in adults is not so uncommon as formerly believed, I think is now generally accepted.

Drs. Mitchell and Fletcher of Cincinnati, in an excellent article on varicella published in the Journal A. M. A. of July 27, 1927, give a report on a study of 775 cases of varicella which had been admitted to the Cincinnati General Hospital from 1913 to 1926. The age distribution of these cases, in percentages, was as follows:

TABLE 1.

Age	Per Cent of Total
Under 6 months of age.....	1.4
Six months to 2 years.....	11.7
Six to 12 years	36.4
Twelve to 20 years	6.8
Above 20 years of age.....	19.4

Of the 150 cases among people over 20 years of age, 118 were in patients from 20 to 30, 26 cases among those between 30 and 40, and six in persons over 40, the oldest case being 45 years of age. I have seen many cases of unmistakable chickenpox in adults. The oldest of these was a patient 60 years of age. In this case I felt sure of my diagnosis and the fact that no other cases developed in the family, which were all adults,

substantiated my conclusion. I have no means of knowing the ages, distribution percentages in the cases I have seen, but I don't think they would vary a great deal from those given by Drs. Mitchell and Fletcher.

The remarkable resemblance between chickenpox and smallpox, has led some of our most noted authorities into mistaken diagnosis, and a difference of opinion between authorities of equal repute are on record. With these facts in mind, I believe that one should be excused for believing that some unknown affinity exists between the two diseases. It must be remembered that Hebra made no distinction between chickenpox and smallpox, but we know today that they are two distinct diseases, and that immunity to one is no protection against the other. Even these facts, however, would not preclude the possibility of an unknown affinity. Many times I have seen these two diseases attack a community simultaneously, each attacking victims in its respective manner. In these phenomena smallpox is easily checked by vaccination while chickenpox runs an uncontrolled course involving larger number of cases.

In this connection it may be of interest to describe a case in point. I was requested recently by a Springfield physician to see a case of an eruptive disease about the diagnosis of which he had some misgivings. I found the case to be a man 32 years of age. He gave a history of two or three days of fever, aching, etc. These symptoms were followed by a very profuse eruption over the entire body, quite profuse over the face, but not quite so much as over the back and front part of the body. There were a number of petechial spots in the palms, but none of them developed into a papule. He had been vaccinated during the war and had a good scar. After carefully considering the differential points, I made a tentative diagnosis of chickenpox. I considered it a rather remarkable borderline case so I invited our chief, the chairman of this section, Dr. J. J. McShane, to see the patient with me. He did not dissent from my opinion but we both agreed that it would be no disgrace for any physician to make a diagnosis of smallpox in this case, even if it should prove to be erroneous.

In the patient's family was a little child three years old. Dr. McShane and I advised the parents to have the child vaccinated on general principles if nothing else. For some reason the

family physician advised against it at the particular time. Personally I was glad of it, as I felt this little child would prove the correctness of my diagnosis. I took the precaution to ask the mother to notify me at once if there appeared any eruption on the child. In about 15 days I called to see the child and it had as typical a case of mild chickenpox as I have ever seen. There was not enough physical disturbance to attract the mother's attention, and the first thing she noticed one morning was the little pearl like vesicles on the body, which desiccated and disappeared in a few days. I considered this proof positive of the correctness of our diagnosis of chickenpox in the father.

The history of smallpox makes very interesting reading. Just how long the disease has existed is unknown, but it is safe to say, it is very ancient. The Egyptian plague spoken of in the Old Testament is believed by some writers to have been smallpox. Among the older writers of medical history, pestilence and plague were often used synonymously with smallpox and other eruptive diseases. It is noted however, that when the description of smallpox is given, it is never spoken of as a strange or un-heard-of affliction, which leads one to believe that smallpox is of greater antiquity than the oldest records show.

In the 6th century the wife of the King of Burgundy succumbed to the pestilence. On her death bed she bound her husband by an oath to sacrifice upon her tomb the two physicians who had attended her in her illness. Whether this illness was bubonic plague or smallpox, has given rise to a difference of opinion, but I think this little bit of history is sufficient to cause the physicians of today to congratulate themselves that they were not engaged in the practice of medicine in that day and age.

The term "variola" was first mentioned in the year 570 A. D., when the Bishop of Lausanne described a violent malady which broke out in Italy and France, characterized by relaxation of the bowels and "variola." Some believe this was the first description of smallpox, while others are of the opinion that it was bubonic plague. Why the term "variola" was used is not explained, but Webster defined "Variolate," as a kind of rock containing imbedded whitish spherules giving the stone a spotted appearance." So it is possible that the term was first used to describe a

disease that had a resemblance to something in nature, although the physician to King Edward (1305) says that variola takes its name from the fact that it affects the skin, "variously." The term pock or pox, has been in use for centuries, but when syphilis appeared in western Europe, it was known as "the pox," or "great pox." Hence it became necessary to prefix a qualifying term to variola, from which we had the term smallpox.

Varioloid is a term which I never use, as it is a misnomer and misleading and should be eliminated from the vocabulary of eruptive diseases, unless applied to chickenpox. The term was first used by Thompson of Edinburg in 1820 to include varicella and all mild affections which he supposed to be modifications of the variola poisons. The suffix "oid," as you know, means like. Typhoid fever means like, or resembling typhus fever, but it is not typhus fever. Similarly the term varioloid should mean a disease resembling variola, but not variola, as in chickenpox. In the common acceptance of the term as it is used today, it is variola. The term therefore should be relegated or applied to a distinct disease as chickenpox, which is not variola, but resembling it. When the term variloid was first used, it must be remembered that mild variola and varicella had not been universally accepted as two distinct diseases, but today when they are accepted as two distinct diseases, it is unfortunate that the term varioloid remained to describe mild variola, instead of being used to describe varicella, where the term rightly belongs.

I feel that the elimination of smallpox is far more important today than any further attempt to educate the physician in the diagnosis and treatment of the disease. I shall devote to that angle the rest of the time allotted to this paper. The frantic efforts made in pre-vaccination days to control or even mitigate the awful scourge of smallpox is a pathetic story. Contrast this with the apparent indifference manifested among the people of today. Inoculation was practiced for centuries in the belief that the disease contracted in this way, assumed a milder character than that contracted in the usual manner. Results confirmed this belief to a certain degree. The death rate following smallpox from inoculation was about one in fifty, while the disease contracted in the usual way killed about one in three. Consequently many people were more willing to take a chance of one in fifty with in-

oculation than of one in three with a naturally provoked infection.

Inoculation was first introduced in England in 1721, and reached America the same year, being first used by a Dr. Boylston of Boston, who inoculated his only son 13 years of age, and two negro servants. Of course before it became generally accepted it met with violent opposition. The disadvantages of this method was, that while the disease was usually milder in type, it was just as contagious and had the effect of keeping smallpox constantly in existence. The annual number of deaths therefrom was even greater than before the introduction of inoculation. Inoculation was practiced in this country for nearly a century before Dr. Jenner gave to the world his wonderful discovery of vaccination. It is not strange that this amazing discovery met with opposition and incredulity. Shortly, however, the ray of hope for an improvement over the old method led to more and more general acceptance of vaccination until it became quite universal. Thomas Jefferson, while president of the United States, wrote to Dr. Jenner in terms something like this. "Future generations will know nothing of the horrors of smallpox except from history, and you will be known as the man who extirpated it."

Has this prophecy come true? For an answer, consult the records of Illinois, and you will find that nearly 5,000 cases of smallpox were reported in 1929. I am confident that many more cases should have been reported. They were not recognized, and consequently not reported. I feel satisfied that if all the cases which actually occur in Illinois had been recognized and reported the recorded incidence would have reached far beyond the 5,000 limit. To use the words of our esteemed Director, Dr. Andy Hall, "This is not only humiliating, but it is disgraceful."

What is the remedy? There is practically no dissention among the 8,000 or 10,000 physicians of Illinois, that universal vaccination would eliminate smallpox entirely. Must we sit idly by and see a comparatively few anti-vaccination cranks dictate the policies of the State relative to this matter? Or shall we rally to the support of a compulsory vaccination law, which our Director has assured me he will have introduced at the next session of the legislature? The mere suggestion of a compulsory vaccination law heretofore has always met with violent opposition

as might have been expected, but with the support of the physicians of Illinois, together with a little education along these lines among some of our best citizens, I feel assured that this opposition will melt away like mist before the sun.

I find that anti-vaccinationists are not so numerous as one would think. Like the whistle on the steam-boat that Abraham Lincoln spoke about, they make so much noise that it appears like they are quite numerous. I believe the majority of the Christian Scientists are broad minded, and would not exert any violent opposition to such a law. The greatest opposition would come from the self-styled, "American Freedom League," which I can only speak of with the utmost contempt. How much freedom do they want? There is no law on earth which compels them to employ a licensed physician. They are at liberty to do as they please so long as they do not become a menace to the rest of mankind. It is plain to be seen that their motive is strictly mercenary. They evidently want all restrictions regulating the practice of medicine removed, so that they can practice their quackery with impunity.

Who finances this institution that has high salaried speakers going about the country advocating anti-vaccination and other scientific discoveries in medicine, unless it is the quacks who are defying the law in many cases, getting by with it, for a time at least. That some are getting away with it is illustrated by the exposure of such infamous characters as the Radio broadcasters, Drs. Brinkly of Milford, Kansas, and Baker of Muscatine, Iowa, the cancer quack, who are exposed in the *Journal A. M. A.* of April 9. These are the characters who would be found in Springfield with plenty of money at their disposal, to fight a bill of compulsory vaccination. I repeat, that it will only take the support of the medical profession, including a little education among the better part of the clientele to assure the passage of a compulsory vaccination law.

A few weeks ago, I addressed the Kiwanis Club of Champaign on preventive medicine. There were present over 100 of the leading citizens which such a club usually represents. In speaking of a compulsory vaccination law, when I gave comparative statistics between Illinois and other states which have such a law, and also put the matter up to them from an economic point of view, I could see that it made an im-

pression on them. After I concluded my talk, a gentleman came up to me, introduced himself and said that he would like to relate a little incident of his own experience, which seemed to fit in nicely with some of my remarks. He said that he and his wife and 3-year old daughter were touring some of the European countries a few years ago. When they got into Germany they heard so much about vaccination etc., the thought occurred to them that they had never had their little daughter vaccinated. Under the circumstances it seemed wise to do it at once, so they went to a physician's office and stated their errand. The physician faced them in astonishment and said, "How did you get into this country?" The gentleman said that they had not been questioned relative to vaccination. The physician replied:

"My dear Man, much as I would like to accommodate you, I can't do it without orders from the authorities, and I must, according to law, report you to the Burgomaster."

This he did, and the Burgomaster in turn consulted with another official and the outcome of it was, that, after a good deal of red tape, the officials finally agreed that owing to the traveller's ignorance of the law, and seeing his intentions were all right, they did not assess any fine. An order to the physician to vaccinate the child was thereupon issued. The physician told the traveller that he had never seen a case of smallpox, and that he would be willing to travel 50 miles to see a case. If that doctor would only come to Illinois I could show him a number of cases without travelling such a distance. It is useless to add, that the gentleman who told me of his experience in Germany is in favor of a compulsory vaccination law.

Another advantage in a compulsory vaccination law is that it would insure vaccination in childhood, and children seem to take vaccination with less liability to complications than older people. In fact, I think babyhood is an ideal time to immunize for both diphtheria and smallpox, and they can not be too young to contraindicate vaccination against smallpox, especially in an emergency. A few months ago, I was called to visit a case of smallpox in a lady living in Manchester, Scott County. The patient gave birth to a baby on the third day after onset of the disease and on the day of the appearance of the eruption. I saw the case on the sixth day

after the birth of the child. The physician told me that he had vaccinated all the family which was quite large, but he did not want to take the responsibility of vaccinating the new born baby, but preferred to wait my arrival. My advice was to vaccinate at once, as it was much safer to risk vaccination than smallpox. The child, I added, was sure to contract smallpox if it were not vaccinated. It was vaccinated and took nicely but it evidently had a mixed infection as a few pustules appeared, but no untoward results followed. A short time after this, I saw a similar case in Havana, and Dr. Hanson of that city vaccinated the baby the day it was born. I saw the mother and baby about the tenth day, and the vaccination was taking beautifully with no apparent discomfort to the baby, and it never contracted smallpox.

In conclusion I wish to say, that if smallpox is eliminated from Illinois during my life time, which a compulsory vaccination law would practically do, it would be to me, like bidding good-bye to an old friend, but I assure you I would shed no tears at the parting. On the contrary I would feel that after years of preaching and advocating vaccination for the prevention of smallpox, my efforts in that direction had at last borne a measure of fruit toward the full realization of a long cherished hope.

DISCUSSION

Dr. I. D. Rawlings: I am pleased to have this opportunity of discussing this excellent paper on smallpox by Dr. Nelson. As proof of Dr. Nelson's years of service in smallpox work in Illinois, I can testify that I first met up with him in his official capacity in December, 1898, when he visited Biggsville on account of an outbreak of smallpox there.

My medical school classmate, Dr. James A. Egan, then Secretary of the State Board of Health, had sent me to Biggsville, Henderson County, Illinois, to treat 10 or 12 cases of smallpox, then without medical attention, because the only physician in the village, who was not afraid to go near a suspected case of smallpox, was himself a patient with a confluent case of smallpox.

When I went to Springfield on February 3, 1921, as Director of Public Health, I was surprised to find that during the preceding month Illinois had had 1,900 cases of smallpox, for I knew that Chicago, with almost half of the state's population, had contributed but 71 of this total.

Knowing of the great experience and diagnostic ability of Dr. Nelson in eruptive contagious diseases, especially smallpox, I asked that Dr. Nelson be sent to me. I was again surprised to learn that his services had been dispensed with. At the first opportunity I

returned him to his old field of activities in the state health service.

Substantiating Dr. Nelson's statements that adult chickenpox is no great rarity, I bring you the recent statistics from Chicago. Unfortunately, the published reports of the Chicago Health Department prior to 1926 fail to show how many of the approximately 4,000 cases of chickenpox reported annually occurred in adults. In 1926, however, there were 469 adult cases among the 5,191 reported cases. In 1927, of the 4,155 cases reported 283 were in adults. In 1928, we had 4,926 cases recorded, of which number 335 were adults. In 1929, of the 4,543 cases of chickenpox, 477 were adults. Thus far in 1930, of the 1,675 cases reported, 117 of these have been in adults, making a grand total since 1925 of 20,049 cases of chickenpox reported of which 1,701 or a little less than 8 per cent. of all cases were in patients above school age.

About 1908, while Dr. William A. Evans was Commissioner of Health, he recognized that chickenpox not only occurs in adults, but also realized the difficulty in differentiating chickenpox from mild smallpox. At that time as a safeguard he required that in chickenpox cases the medical health officer see all cases 16 years or over if the report of the physician said patient was unvaccinated or if the report from the physician failed to give the vaccinal status, to make sure that the so-called chickenpox case was not one of smallpox.

Too much stress cannot be laid on the difficulty in recent years of making a diagnosis of smallpox. The mild type of disease, now prevalent, is very atypical as judged by the experience in earlier years of Dr. Nelson as well as by the older text-book descriptions.

Although each medical health officer in Chicago has seen a number of cases of smallpox, occasionally one of these diagnose the mild atypical smallpox case as one of chickenpox. The attending physician still more frequently makes this mistake. As illustrating this point I have gone through the Chicago records for 1928, 1929 and 1930 and find the following data:

In 1928, of the 147 cases of smallpox reported, 12 of these had a diagnosis of chickenpox made by the attending physician. Four of these were in adults. During the latter part of 1928 there occurred on the south side of Chicago, in the Auburn Park district, quite a number of smallpox cases of a mild character. The beginning of this localized epidemic was due to the failure to recognize as smallpox a number of cases which were diagnosed as chickenpox at the beginning of this outbreak, occurring among the pupils of a parochial school.

In 1929 a mistaken diagnosis of chickenpox was made in 7 of the 73 cases of smallpox cases reported. Four of these were in adults.

During the first four months of 1930 there were 100 cases of smallpox reported, and in 7 of these a mistaken diagnosis of chickenpox was made. All of these seven were in adults.

If cases in unvaccinated individuals occur with typical onset symptoms and with but one or two lesions, it is logical, I believe, to assume that there can be cases of true smallpox in the unvaccinated individual without

any eruption. However, I have never seen such a case in an unvaccinated individual. In the individual, vaccinated successfully years ago, it occasionally occurs. In fact I believe I personally had a modified smallpox without an eruption in January, 1899, although I had had a successful vaccination in 1886, with a retrial in 1892.

It is not uncommon to find in an individual vaccinated about the fifth day after exposure, where there is a good active vaccination resulting, that very few lesions appear as the vaccination took too late to prevent all eruption, but in these cases the course of the few lesions is greatly modified by the vaccination and these lesions run a short course. For example, in 1930, smallpox case No. 67 had but one typical lesion and cases No. 68 and 69 each had three lesions. These were all vaccinated after exposure but too late to entirely prevent all eruption.

I was interested in the statement by Dr. Nelson about the newborn baby which was promptly vaccinated with a good result. For years the late Heman Spalding insisted that if the unvaccinated individual exposed to smallpox is vaccinated within four days after exposure and a prompt "take" results that individual will escape smallpox. If the vaccination is made after the fourth day or a prompt "take" does not result then the disease will not be prevented but it will be modified. A vaccination made seven or more days after exposure may "take" but the disease will not be modified by it. Years of observation by the speaker confirms this statement in almost all cases.

I had hoped Dr. Nelson would tell us how early in the pre-eruptive febrile stage of smallpox the disease is contagious. The last official act of Dr. M. of Biggs-ville, before he developed confluent smallpox, was to deliver and work over a "blue baby," using all the various means of resuscitation, one of which was blowing his breath into the child's face and lungs. From that case he went home to bed feeling quite ill, with a temperature of 103° F. The next afternoon he developed the smallpox eruption. Until I arrived on the ground, some seven days later, there was no one to vaccinate that infant, yet it did not contract smallpox.

I hope Dr. Nelson is not underestimating the strength of the cultists in connection with their organized opposition to a compulsory vaccination law. Many of us remember what happened in this connection in Chicago in January, 1926. Let me read you some of the damnable provisions which the "cults" are said to have forced into the Chicago ordinance creating a Board of Health.

"The Board of Health shall pass no rule or regulation which will compel any person to submit to vaccination, or injection of any virus, or medication, against his will or without his consent, or, in case of a minor or other person under disability, the consent of his or her parent, guardian, or conservator, and nothing in this ordinance contained, or in any other ordinance heretofore passed and in force in this city, shall be construed to authorize or empower any person or officer to so vaccinate, inject, or medicate, without such consent, or to authorize or empower the said board of

health to adopt any rule or regulation requiring or authorizing any such vaccination, injection, or medication."

Because of certain handicaps resulting to the work of the Chicago Health Department, owing to the restrictions in this ordinance, I feel sure that Dr. Hall, the director of public health, will receive the united support, of the Chicago Health Department and all its influence in his effort to pass a compulsory vaccination act.

Because of the big howl that the anti-vaccinationists are going to make over the bugaboo of so-called "vaccinal encephalitis," if an attempt is made to pass a compulsory vaccination act, I wish to devote three minutes to that subject if time permits and the chair does not rule that I am out of order for not sticking to my subject, as Dr. Nelson's paper did not mention this.

Post-vaccinal encephalitis. We must accept the fact that there is such a pathological condition as post-vaccinal encephalitis. We must also agree that this disease has occurred in Illinois. The speaker in December, 1928, had occasion to investigate two deaths at East St. Louis which were charged to vaccination against smallpox. The first of these two children undoubtedly died of pneumonia. The other case was the one cited by Simon Flexner in his classical article on Post-vaccinal Encephalitis, published in the Journal A. M. A. on February 1, 1930. This second case was undoubtedly, a case of post-vaccinal encephalitis. During my 30 years in contagious disease and other public health work in Illinois I have been in close touch with the deaths said to be due to vaccination against smallpox. During this entire period I know of but this one case of post-vaccinal encephalitis. In Chicago the Department of Health alone in the past 10 years has performed well over 940,000 vaccinations and yet we know of not one case of post-vaccinal encephalitis. At best this disease is a great rarity in the United States. It can be ignored as a cause of death of any consequence when compared with the more than two hundred deaths from smallpox in Chicago since 1900, to say nothing of the many cases of illness and deaths prevented by these several hundred thousand vaccinations.

There should be no doubt in the mind of any medical man in deciding whether or not to vaccinate a child against smallpox because of the remote possibility of a post-vaccinal encephalitis. The physician who does not want to take this tiny chance can greatly minimize this slight possibility of this disease by having the child vaccinated before he is nine months old.

There is no doubt that the cults will add post-vaccinal encephalitis to tetanus, syphilis and the other exploded theories of dangers (under correct technic) from vaccination against smallpox. We should all be informed on how extremely rare post-vaccinal encephalitis is so we can give correct information to the public in meeting the bombastic false claims of the cults.

Dr. Arlington Ailes, La Salle: I have two or three points to bring up. I can say in my short experience I have seen 25 or 30 cases of adult chickenpox, and the

point I want to make is this, that they are usually much more serious than childhood chickenpox. So that chickenpox is one disease I tell the people the children ought to have. I think they really ought to have it because when an adult gets it they are sick and it takes them away from their livelihood and takes the mother away from caring for the children, and they have to go to bed.

Another point. I just have two cases to report. A doctor reported two cases of smallpox in one home. I hurried out to see them. The mother and a small child were sick. The mother met me with a great roar of indignation about vaccination, showing a big scar on the arm, and saying, "Now we have smallpox." I looked her over and decided she and her child had chickenpox. She said, "Where did we get chickenpox?" They had a six year old child just home from school. I saw a lot of spots on the body left by recent chickenpox. A great many of the mothers never know when their children have chickenpox and they are overlooked by the nurse and teacher in school and that's the way it is often brought home and accounts for some of these cases.

Another experience I had was a case in which all the other members of the family were vaccinated except the daughter and her husband. This daughter said she had been vaccinated twice and now she contracted smallpox. Her husband had no vaccination scar although he said he attempted vaccination three times and it did not take. The family was poor and he was the only one working and I said to him, "If you will call your doctor and get vaccinated right away, and especially if you will find a place where you can go so that we can quarantine you for sixteen days, in case your vaccination does not take, we can release you and then you can go back to work." He decided to stay home, however, but took his vaccination. I saw him again in about eight days and he had not had a successful vaccination. The doctor had not come back to see whether he had or not. But he told me, "My arm itched a little bit" and there was a little pimple there and a scab. I thought possibly that he had had a reaction of immunity. So I secured a fresh point. I took that liberty because of the financial situation, and vaccinated him again. Sure enough, that boy had a well marked reaction of immunity. When I released the wife I also released him because of this immunity.

Another thing, to lessen resistance to vaccination and which may help to put over the compulsory law is the performance of modern vaccination. If the doctors will learn to use the multiple puncture method of vaccination, which consists in just cleansing the skin, placing on a drop of fresh virus and then just a few little pressure punctures, through this drop, of the needle held tangent to the skin and then if they do not bind up the arm and will vaccinate early in life, there will be little trouble. There is then little sickness.

I had a little experience in Sidney, Ohio. In that state the board of education has the right to pass a regulation requiring compulsory vaccination of all school children who enter their schools. I tried to get

that through with the board of education at Sidney and one of my biggest reactions from the public was, "Well, I have three or four children going to school and it will cost me six or seven or eight dollars to get them all vaccinated." I was just wondering if you would not meet with a lot of opposition that way about a state law. If there could be some way whereby the first vaccinations could be free I think you would have a whole lot more people in favor of it than otherwise. If there would be some way where a family who had four or five children going to school would not have to go to the doctor and pay six to ten dollars to initiate this new law, it might take away a lot of opposition.

Dr. Tom Kirkwood, Lawrenceville: I would like to ask one question. In 940,000 vaccinations they had in Chicago with no deaths from encephalitis, did they have any deaths from any other reason following vaccination?

Dr. I. D. Rawlings, Chicago: They were all since 1920 and I left in 1921. There were three or four tetanus deaths. I think Dr. McShane would know better than I because he was watching the situation more closely.

Dr. W. H. Smith, Benton: Our medical profession has been responsible for people fearing that sore arm following vaccination, and the gentleman over here who spoke gave us a good point. You go into any town where there are as many as half a dozen physicians and the chances are that each individual physician will have his individual technique. The chances are that he doesn't ask the patient to return at the end of five days, or any other time to give care to the arm. I find that a great many doctors still use a shield, and they put on a pad of gauze and we find that glued to the vaccination wound.

Again, it is very important that the virus should be properly cared for. We sometimes go into a drug store down in Southern Illinois and call for the virus, even if it is at one of our stations and the temperature in the room will be more than 110 and they go to a drawer and take out the virus and hand it to us. I don't believe that one doctor out of a hundred understands the reaction that we get from the virus with relation to the care that the virus itself has had.

Unless the State Department of Health can bring about some recognized technique and mode of care, people will always dread vaccination against smallpox. I think that is an important thing for the department to take up and give us a recognized technique and advocate it, and as to the care of the vaccination wound. I feel that the people are largely justified in saying that they would sooner have smallpox than to take their chances in some places down in Southern Illinois with vaccination against smallpox. I have seen some terrible arms, all uncalled for, because there is no regulated technique. Some of the doctors don't even make the arm clean; they just have the fellow roll up his dirty sleeve and vaccinate him. No wonder they get infections.

Dr. Victor Brian, St. Francisville: I would like to ask Dr. Nelson if he thinks it would be safe in the case

of modified smallpox, if the vaccination be carried out a little late, to release that patient under 21 days. Our regulations now require us to keep the modified smallpox 21 days, as I understand it. I have a lot of grievance on account of people who have been vaccinated and their vaccination is late, they would have a modified smallpox which will go through the stages very quickly and peel off, and yet they don't like to stay in for 21 days.

Dr. Charles Nelson, Springfield (closing discussion): In answer to the question about contagiousness in the pre-eruptive stage, I will say this that we have plenty of evidence to prove that smallpox is contagious in the fever stage. But I firmly believe judging from my experience that it is not so violently contagious as in the latter stages, but however we can't afford to take those chances. It is contagious in the fever stage; there is no question about it.

Another thing, I don't consider that modified or mild smallpox is as contagious as the confluent type, on the same theory that a little fire is not as dangerous as a big one. There are many more germs in the confluent type.

Just a short time ago, I was called to a little town where the school teacher brought the smallpox into the school and the children ran around there like rats with mild smallpox. No doctor had seen them. I didn't see them until I got into the place and I got a history. This kind of case helps to build up the belief and declaration of the public that they would rather have smallpox than to be vaccinated. But when I pull a picture out of my pocket and show the old confluent type, it changes their minds.

In regard to post-vaccinal encephalitis, it is very unfortunate that these cases sometimes occur, and that is one point in favor of the compulsory vaccination law because that will insure the vaccination of children in early life. I believe Dr. McShane told me not long ago that post-vaccinal encephalitis was never found in a baby or in early childhood.

Dr. McShane: I have never found any.

Dr. Nelson: Unfortunately I believe I saw a couple of cases in Springfield a couple of years ago. But that is a great argument for these antivaccinationists, of course.

I had a disgusting experience a few years ago, going to Jacksonville and hearing a representative of the antivaccination league talk on antivaccination, and he told some of the most disgusting stories of what happened sometimes in vaccination. Among other things—I want you to believe it because I have proof of it—he said when his sister was vaccinated she broke out all over her body with cow's hair. He said, of course, fortunately it didn't last long. But if every case they bring up against vaccination was true, it wouldn't be an argument against vaccination, because the deaths are so small as compared with the number of deaths that occurred in the pre-vaccination days that it would be just as sensible as the advice never to ride in automobiles because some people get killed.

When Uncle Sam took over the Philippines this

country vaccinated 3,500,000 natives there and stamped out smallpox without a solitary death or bad result from the vaccination. Isn't that proof enough of the comparative safety of vaccination?

Dr. Smith brought out a good point about what are we going to do with these physicians you can't teach anything. Years ago I was over in Eastern Illinois and happened out in the country where a doctor was vaccinating the school children. I suppose he was hired by the school board. If the township or some officials have any legal problem they want solved or analyzed, they will get the very best lawyer they can get regardless of price but, if they want some medical attention they generally put it upon the auction block and let it out to the lowest bidder, and this fellow evidently was the lowest bidder. He had a needle, and had the children lined up. He would scratch the arm until the blood trickled down the arm and would take his dirty index finger and wipe off the surplus blood, stick the needle into the lapel of his coat and call for the next and repeat the operation. I said to him, "That's the way you vaccinate. If you don't have a lot of infected arms, I will miss my guess." I made a report to Secretary Egan and I think he wrote him a pretty stiff letter. I find doctors today that are using the old cross-scratch method, bunion plasters, shields, heavy bandages, and it seems to me you can't teach them any different. An old friend of mine, a good physician, had two or three boxes of bunion plasters upon his desk. I said, "You don't use them, do you?" He said, "Yes. I never had any trouble." Now, the medical journals are full of this teaching, Dr. Smith. I don't know what more we can do. But it seems to me some physicians will study the major things and neglect the little things. Many an automobile has been ruined by the manufacturer neglecting the little things and it is the same way with the medical profession. They may study how to perform a laparotomy or something like that, but a great many of them don't know how to perform a proper vaccination.

In answering Dr. Brian's question, I have nothing to say because the rules of the department require three weeks' minimum period for smallpox. I don't think there is any question that some cases could be released safely before that time, just the same as I believe some cases of mild scarlet fever could be released earlier but it wouldn't be safe to take a chance. So we have to abide by the rules.

It is a fact that chickenpox in adults is more severe than in children and I think that must be one reason why some of the old authors say they have never seen chickenpox in adults, because I have seen them with the prodromal symptoms and broke out from head to foot ten times worse than many cases of smallpox; as far as eruption was concerned.

I believe I have made mistakes myself in order to be on the side of safety. I remember a case in Winchester where the doctor had a case which he diagnosed smallpox. I said, "I believe it is chickenpox, but we can't afford to take any chance so go on with the quarantine." But in a case in Springfield where I had the

opportunity to give it personal attention, I took a chance and proved that I was right.

THE FAMILY DOCTOR

"Many changes have taken place. Medicine is now as much preventive as curative. The hospital, a place that was once dreaded as a last refuge for the sick, is now looked upon as almost a necessity by those but slightly ill.

"But there is one thought that makes me look back with gratitude and love to the old-fashioned doctor. He treated people; the doctor of today treats a disease. The old family doctor, though he had a long beard where germs abounded, and even a spotty vest, knew his patient and in many cases the patient's family and his physical peculiarities. He did not have to jot down the antecedents or the history of a case on a card; he knew it in his head and in his heart.

"If medicine were an exact science I would say: 'Yes, the family doctor has outlived his generation.' But it is not. There is something to mental healing, and the ounce of confidence which he instils often proves to be a pound of cure."—*William Henry Welch, America's Dean of Medicine.*

Society Proceedings

ADAMS COUNTY

The regular monthly meeting of the Adams County Medical Society was held at the Elk's Club Hall, December 8, 1930. The meeting was called to order by the President, Doctor J. F. Ross, at 8:25 P. M. Forty-three members in attendance.

Doctor Carson K. Gabriel gave a brief report of the 1930 meeting of the American Academy of Ophthalmology and Otolaryngology, held in Chicago. Doctor E. B. Montgomery reported the 1930 meeting of the American College of Surgeons, held in Philadelphia and Doctor J. E. Miller gave a report of the 1930 meeting of the Interstate Post Graduate Assembly of North America, held in Minneapolis.

Doctors E. E. Lyon, of Quincy, and F. B. Parker, of Ursa, were elected to membership in the Society.

The Secretary read his annual report, which was followed by the Treasurer's report.

The annual election resulted as follows: Doctor Harold Swanberg was elected president; Doctor Hart Litchfield, first vice-president; Doctor D. M. Knapp, second vice-president; Doctor Frank Cohen, secretary; Doctor J. A. Koch, treasurer; Doctor Ralph McReynolds, Medico-Legal Member of the Society. Doctor T. B. Knox, Delegate for the Society for two years; Doctor Walter D. Stevenson, Alternate Delegate; Doctors Warren Pearce and J. E. Miller, members of the Council to serve for two years; Doctor E. L. Caddick, on the Board of Censors for three years; Doctor H. S. Maupin, a member of the Library Committee for three years. At this time the President appointed Doctor C. D. Center to escort the newly elected president to the chair.

Doctor Ralph McReynolds made a motion that the usual honorarium of \$100.00 be given the Secretary in appreciation of his services during the past year. Carried.

Doctor C. A. Wells made a motion that \$300.00 be appropriated from the treasury for the expense of the Library Committee during the coming year. After considerable discussion this motion was carried.

Doctor J. A. Koch made a motion the 1930 dues for membership in the Society be maintained at \$20.00. Doctor T. B. Knox made a substitute motion the dues be \$15.00. After considerable discussion, the substitute motion was carried.

A motion was carried that the January meeting be a social meeting and in charge of the newly appointed entertainment committee.

A motion was carried that the Secretary be instructed to enter into a contract in the name of the Society for the publication of the *Bulletin* during the coming year, the expense to the Society not to exceed \$100.00.

The meeting adjourned at about 11:25 P. M.

HAROLD SWANBERG, M. D., Secretary.

ALEXANDER COUNTY

The Alexander County Medical Society closed its activities for the year with a joint business meeting and banquet with the Pulaski County Society at the Halliday Hotel, Cairo, the evening of December 16. There were present seventeen members from the two societies. Guests of the Society were. Dr. J. S. Templeton, of Pinckneyville, Ill., Councilor for this the Tenth District, and Dr. J. W. Hamilton, Mt. Vernon, Ill., of the Ninth District. There were also present as guests of the different members Drs. M. L. Klinefelter and W. E. Saur, of St. Louis, Mo., Dr. W. S. Love, Charleston, Mo., and Dr. Harkless Dunn, Elgin, Ill.

Officers for the Alexander County Society for 1931 were elected as follows: President, Dr. J. E. Woelfle, Cairo; Vice-President, Dr. Flint Bondurant, Cairo; Secretary-Treasurer, Dr. J. S. Johnson, Cairo; Member Board of Censors, Dr. R. E. Barrows, Cairo.

The annual report of the secretary showed that of the 21 eligible physicians in the county 19 are members, making a percentage of 90 plus. This is held to be as high as that of any county in the state. The report also showed that monthly meetings were held during the year with the exception of the three summer vacation months. One of them was a public meeting at request of Dr. Andy Hall, Director of Public Health of the State, and another a special meeting addressed by Dr. Alex. Brunswick, of Chicago. There was a report of every meeting in the ILLINOIS MEDICAL JOURNAL next issue following the same, and three times during the year the Journal A. M. A. took notice of the programs. Besides these the local daily carried a notice of each meeting on the afternoon preceding same followed by report of the proceedings next day.

The regular mailing list of the secretary covered all physicians in this and Pulaski Counties, Ill., and the

adjoining counties of Ballard in Ky., and Mississippi County, Mo. During the year, not including the public meeting, 46 visiting physicians attended. The programs presented were all of high order, and the retiring secretary is duly appreciative of the willingness of the members to contribute to the success of each program. The Society, therefore, has closed a helpful and enjoyable year.

The banquet that followed was a sumptuous one.

JAS. W. DUNN, Secretary.

COOK COUNTY

CHICAGO ROENTGEN SOCIETY

Wednesday, December 10, 1930

- Roentgenological Aspects of Pulmonary Tuberculosis in Childhood Benjamin Goldberg
X-Ray Diagnosis of Tuberculosis.....
.....Dr. George Palmer, Springfield, Illinois
Indications for and Results of Surgical Treatment of Pulmonary Lesions as Observed RoentgenologicallyDr. W. A. Evans, Detroit, Michigan
Discussants: Dr. Lorison Brown, Saranac Lake, New York, Carl Hedblom, James Britton, Ralph Bettman.

CHICAGO MEDICAL SOCIETY

Wednesday, December 17, 1930

SYMPOSIUM ON GALL BLADDER DISEASE

By Northwestern University Medical School

- Physiology of the Gall Bladder.....A. C. Ivy
Pathology of Gall Bladder Disease.....J. P. Simonds
Roentgenology in Diagnosis of Gall Bladder DiseaseJames T. Case
Clinical Diagnosis of Gall Bladder Disease.....
.....C. A. Elliott
Surgery of Gall Bladder Disease.....H. M. Richter

THE SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE

Tuesday, December 16, 1930, 7:30 P. M.

1. The Pathology of Experimental Vaccinal and Rabies Encephalitis. R. R. Grinker (Intr. by H. B. Van Dyke).
2. Studies in Renal Denervation—I. Roentgenographic Demonstration of Vascular Alteration. G. Milles, E. F. Müller and W. F. Petersen.
3. Effects of Viosterol on Basal Metabolism of Normal Dogs. C. I. Reed, E. A. Thacker and J. W. Welch.
4. A Study of Excretion in Normal Dogs after Intravenous Administration of Viosterol. E. A. Thacker, L. M. Dillman and J. W. Welch (Intr. by Dr. Reed).
5. Calcium Content of Various Tissues of Normal Dogs after Administration of Viosterol. L. M. Dillman and R. I. Klein (Intr. by Dr. Reed).
6. A Tyramine-like Substance in the Colostrum of Eclamptic Patients. I. T. Genther and B. Van Hoosen (Intr. by Dr. Austin).
7. The Stability of Esterase and Ereptase in Ground Liver and Kidney Preserved in Glycerol. O. R. Caillet (Intr. by Dr. Simonds).

8. The Influence of Eggwhite upon the Absorption of Bacteria from the Intestinal Tract. A. J. Nedzel and L. Arnold.

9. The Influence of Eggwhite upon the Elimination of Bacteria into the Intestinal Tract. A. J. Nedzel and L. Arnold.

10. The Influence of Eggwhite upon the Cyclic Circulation of Bacteria in the Splanchnic Area. A. J. Nedzel and L. Arnold.

11. The Influence of Eggwhite in the Duodenum upon the Elimination of Bacteria into the Gall Bladder. A. J. Nedzel and L. Arnold.

12. Absorption of Bacteria from the Gall Bladder. A. J. Nedzel and L. Arnold.

13. The Effect of Rectally Administered Ether-Oil Mixtures on the Absorption of Histamine from the Colon. R. W. Albi and T. E. Boyd.

25. A Pump Extraction Method of Female Sex Hormone from Pregnant Urine. R. G. Gustafson, S. S. Schochet and J. E. Lackner. (Intr. by Dr. Arnold).

To Be Read by Title

14. Influence of Gastric Acid Secretion Upon the Bactericidal Power of the Gastro-Intestinal Tract. S. B. Furby and L. Arnold.

15. Influence of Saponin upon H-ion Concentration and Bacterial Flora in Stomach and Small Intestine. Irving Kaufman (Intr. by Dr. Arnold).

16. Influence of Broth Cultures and Media upon Self-Disinfection of the Skin. B. E. Montgomery (Intr. by Dr. Arnold).

17. Optimum Bacterial Suspension for Testing Skin Disinfection. R. Karns and L. Arnold.

18. New Technic for Roentgenographic Study of Renal Vessels. G. Milles, E. F. Müller and W. F. Petersen.

19. Protein Digestion in the Human Stomach. W. H. Welker and O. Bergeim.

20. The Destruction of Yeast in the Normal Human Stomach. B. E. Montgomery, A. K. Boor, L. Arnold and O. Bergeim.

21. The Effect of Bilateral Suprenalectomy on Certain Constituents of the Blood of Dogs. A. B. Hastings and E. L. Compere.

22. Studies of the Relationship Existing Between the Suprarenal Glands and Muscle Tissue Respiration. J. E. Davis and A. B. Hastings.

23. Mobilization of Blood Inorganic Constituents after Vagal Stimulation. E. G. Lipow, W. K. Weaver and C. I. Reed.

24. The Influence of Saponin on the Intestinal Absorption of Calcium. F. C. Sternasty (Intr. by Dr. Boyd).

DEKALB COUNTY

Thursday, December 11, 1930, The DeKalb County Medical Society was entertained by the Staff of St. Mary's Hospital, DeKalb, Ill. A turkey dinner was served to the twenty-three physicians present at 12:30 P. M. Monsignor Solon acting as host.

The 1931 officers of the DeKalb County Medical Society are as follows: President, Dr. Chas. D. Carter,

DeKalb; Vice-president, Dr. Roy M. Wheeler, Sycamore; Secretary and Treasurer, Dr. Clifford E. Smith, DeKalb; Delegate for two years, Dr. Percy I. Hopkins, DeKalb; Alternate for two years, Dr. Rodney A. Wright, DeKalb; Censor for three years, Dr. Louise L. Culver, Sandwich; Censor for two years, Dr. James S. Rankin, DeKalb; Censor for one year, Dr. Robert G. Dakin, Sandwich.

Dr. Paul Starr of Chicago gave a splendid address on "The Medical Treatment of Liver Diseases."

Lack of sugars, fats and carbohydrates in the diet tend to degeneration of the liver. Dr. Starr illustrated his lecture with lantern slides.

KANE COUNTY

Forty-eight physicians attended the Duck Dinner given by the Kane County Medical Society the evening of December 3 at Aurora. Members of the Woman's Auxiliary to the County Medical Society were guests.

Dr. W. L. Benishek of Joliet gave a very good and encouraging paper on "Treatment of Neurosyphilis with Malaria" and reported a series of cases. Dr. and Mrs. Scott of Geneva showed quite a number of films taken on their European trip last summer, interpolating explanatory remarks where they would do the most good. A resolution was passed concerning the death of Dr. O. A. Chappelle of Elgin. Music was furnished by Dr. and Mrs. L. J. Hughes of Elgin.

The following officers were elected for the year 1931: President, H. H. West, Elgin; Vice-president, C. G. Weller, Aurora; Secretary-Treasurer, Leland Anderson, Aurora; Board of Censors, R. W. Carpenter, Geneva, George W. Haan, Aurora, and G. J. Schneider, Elgin; Necrology Committee, J. D. Milligan, Elgin, R. J. Lambert, St. Charles, and A. H. McLaughlin, Aurora; Delegates to State Meeting, H. H. West, Elgin, and L. J. Hughes, Elgin; Alternate Delegates; E. L. Lee, Aurora and L. H. Anderson, Aurora; Ethical Relations, A. E. Diller, Aurora, C. E. Colwell, Aurora, C. E. Schurmeier, Elgin, J. R. Tobin, Elgin and R. G. Scott, Geneva.

Personals

Dr. Edward S. Blaine has moved to Los Angeles where he has purchased the equipment of the late Dr. William B. Bowman who had one of the largest X-ray laboratories in the Southwest. Dr. Lloyd Arnold broadcasted over WGN under the auspices of the State of Illinois Department of Public Health on Saturday, December 6, on "New Twentieth Century Diseases."

Among others, Dr. Sol R. Rosenthal addressed the Chicago Pathological Society, December 8, on "Aneurysm of the Cystic Artery and Melanocarcinoma of the Gall Bladder."

The first meeting of the Chicago Society of Allergy was addressed, December 22, by Drs.

Samuel M. Feinberg and Harry L. Huber on "Historical Aspects of Allergy" and "Variations in Tolerance to Pollen Extracts," respectively.

Dr. James B. Herrick gave a brief memorial tribute to Dr. Charles E. Paddock before the Chicago Gynecological Society, December 19. Other speakers were: Drs. Alexander G. Gabrielian on "Spinal Anesthesia in Gynecology," and Jacob P. Greenhill, "Rupture of a Corpus Luteum with Intra-Abdominal Hemorrhage."

Among the speakers who addressed the Chicago Tuberculosis Society, December 11, were: Drs. Robert G. Bloch on "Experimental Infection with Tuberculosis"; Russell D. Herrold, "Laboratory Diagnosis of Tuberculosis," and Ralph B. Bettman, "Feasibility of Intrapleural Operations."

The Chicago Society of Internal Medicine was addressed, December 15, among others, by Dr. Joseph L. Miller on "Classification, Etiology and Pathology of Chronic Arthritis."

The eighth annual joint meeting of the Illinois and Chicago societies of industrial medicine and surgery was addressed, December 3, by Drs. Hiram W. Orr, Lincoln, Neb., and Henry W. Newman, Cincinnati, on "Osteomyelitis" and "Nonsurgical Industrial Medicine," respectively.

The Chicago Roentgen Society was addressed, December 10, by Drs. George T. Palmer, Springfield, Ill., on "X-Ray Diagnosis of Tuberculosis," and William A. Evans, Detroit, "Indications for and Results of Surgical Treatment of Pulmonary Lesions as Observed Roentgenologically"; Dr. Benjamin Goldberg spoke on "Roentgenologic Aspects of Pulmonary Tuberculosis in Childhood."

Dr. Benjamin Goldberg, medical director of the City of Chicago Municipal Tuberculosis Sanitarium organization and associate professor of medicine, University of Illinois, was the speaker at the joint meeting of the Jefferson County Medical Society and the Louisville Tuberculosis Association, at Louisville, Ky., on Monday, December 1, 1930. His topic was "Tuberculosis Control and the General Practitioner."

Dr. Goldberg also addressed a noon luncheon meeting of the Hospital Directors' Association at Louisville, on the same day. At this time he spoke on "Clinic and Sanatorium Management of Tuberculosis."

News Notes

—There has recently been appointed a consulting staff to the Chicago State Hospital at Dunning. The personnel is as follows:

Surgery: Chas. E. Humiston, president, Geo. W. Post, Jr., Homer W. Humiston.

Orthopedic Surgery: Thos. Meaney.

Oral Surgeon: L. W. Schultz.

Internal Medicine: Thos. P. Foley, Secretary, Jas. G. McGrath.

Eye, Ear, Nose and Throat: Leo J. Steiner, Edw. F. Garraghan.

Obstetrics: Louis Faulkner, Milton J. Summerville.

Genito-Urinary: Harry J. Dooley.

Dermatology: M. S. Fink, B. B. Beeson.

Pathologist: E. C. Piette.

—Madame Debrowskaia-Zavadskaia, biologist and radiologist of the Curie Institute, Paris; Dr. Frances Dickinson, Dr. Clara Seippel Webster of Tuscon, Arizona; Dr. Petra Dahl, president of the Medical Women's Club of Chicago, and several others met for luncheon on November 24. Although the time for program was limited those present were very much interested in the short talk given by Madame Zavadskaia relative to the value and limitations of radium and the x-ray in treating cancer.

—Medical women from Washington, D. C., Louisiana, North Carolina, Nebraska, Iowa, etc., are to be in Chicago, January 16th, in attendance at the mid-year board meeting of the Medical Women's National Association.

A banquet will be given in their honor on the evening of that day at the Chicago Woman's Club. Medical women are invited.

—The Chicago Council of Medical Women will hold their regular monthly meeting at the Medical and Dental Arts Club, 185 North Wabash Avenue on Friday evening, January 9, 1931, at 8 o'clock.

PROGRAM

Encephalitis—(with movie reel).....
.....Mabel Masten
Discussion: Anna E. Blount and Yetta Shetel.
Parasitic Infections in Chicago.....
.....Bertha Kaplan
Discussion: Marie Ortmayer.

—Hoffmann-La Roche, Inc., well known as "makers of medicines of rare quality," have extended their property by the purchase of 10 additional acres of land, making a total tract of 35 acres. The purchase was deemed essential in the light of the company's steadily increasing sales under keen aggressive management.

In the words of Mr. Elmer H. Bobst, general manager, "Hoffmann-La Roche has just begun to grow!"

—Before the Medical History Club of the University of Illinois, on December 17, 1930, Dr. C. I. Reed of the Department of Physiology, University of Illinois, College of Medicine, read a paper on "Dr. William Beaumont, Backwoods Physiologist."

—The Art department of the College of Medicine, University of Illinois, has on exhibition in the library—The Dance of Death and Medical Book Plates from the Collection of Mrs. Edmund Andrews and Dr. Otto L. Schmidt.

—At the clinical conference, Thursday, December 18, 1930, of the departments of obstetrics, genito-urinary surgery and pathology, of the Research and Educational Hospitals, University of Illinois, the following program was given:

1. Treatment of Hyperemesis Gravidarum..
.....Dr. Lash
2. Nephritic Toxemia.....Dr. Fischmann
3. Observation in Skin Reactions in Animals
Inoculated with Tubercle Bacilli and other
Acid Fast Organism.....Dr. Russell Herold
4. Lymphosarcoma—
(a) Clinical Aspects.....Dr. Falls
Pathological Aspects.....Dr. Milles

—Several members of the Chicago Medical Society have been seriously inconvenienced and in some instances placed in a most embarrassing position because of their failure to comply with the following provision of the Criminal Code of Illinois:

"Every person not standing in the relation of husband or wife, parent or child, brother or sister to the offender, who knows the fact that a crime has been committed, and conceals it from the magistrate, or who harbors, conceals or maintains or assists any principal felon, or any accessory before the fact, knowing him to be such, shall be deemed an accessory after the fact,

and shall be punished by imprisonment in the penitentiary for a term of not less than one year and not exceeding two years, and fined not exceeding \$500."

Physicians would probably do well to report all accident cases in which there is a possibility of violence to the proper authorities. In a situation of this kind it is better to lean over backwards than take the chances of being charged with being an accessory to murder after the crime.

—At the bi-weekly meeting of the Medical History Club of the College of Medicine, University of Illinois, held November 19, the address was given by the Royal Italian Consul General, Mr. G. Castruccio, who talked on "The Present and Past of Italy."

—The Educational Committee of the Illinois State Medical Society for the third consecutive year has been asked to arrange a series of health talks to be given in some of the larger industries of Chicago during December, January and February.

—Under a plan announced by the Chicago Medical Society, the services of trained nurses may be obtained for twenty hours at a cost of one dollar more than the prices previously charged for twelve hours. The rate will be \$8 for a twenty hour day. The present rate of \$7 for a twelve hour day remains as at present. The plan also makes available the practical nursing and undergraduate nursing service at one-third less cost than graduate service. Hourly nursing service will be obtainable at a rate of \$2 flat for the first hour and \$1 each hour thereafter when the family physician believes this will be sufficient. The new rates result from the fact that the public at present is disposed to cut nursing time to the minimum. More cases are now being cared for by relatives and neighbors, it is reported, than at any time in the last ten years. Already 60 per cent of the demand is for twenty hour service and only nurses who exemplify the highest standard are suitable for this. The new service is available through the nurses' registry of the Chicago Medical Society.

Deaths

VIRGIL A. BAKER, Marion, Ill.; St. Louis College of Physicians and Surgeons, 1903; member of the Illinois

State Medical Society; aged 54; died, October 28, of heart disease.

NATHAN BARLOW, Hines, Ill.; Northwestern University School of Medicine, Chicago, 1902; since 1919 connected with the U. S. Veterans' Bureau; aged 54; chief of the medical staff of the Edward Hines, Jr., Hospital, where he died, November 24, of carcinoma of the pancreas.

FRANCIS HOMER BLACKMAN, Geneva, Ill.; Chicago Medical College, 1870; aged 84; died, November 8, at the Community Hospital, of myocarditis and acute prostatitis.

JOSEPH EDWARD BUNDY, Sheldon, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1883; aged 75; died, November 9.

MARY LEOLA CARRICO, Danville, Ill.; Rush Medical College, Chicago, 1916; aged 37; was found dead in bed, November 16, of cerebral hemorrhage.

ORA ADDISON CHAPPELLE, Elgin, Ill.; Rush Medical College, Chicago, 1892; also a dentist; aged 68; died, October 26.

JOHN S. COOK, Beecher City, Ill.; Missouri Medical College, St. Louis, 1880; also a minister; aged 81; died, October 22, of dilatation of the heart.

EDWIN C. HAMILTON, Kankakee, Ill.; Starling Medical College, Columbus, Ohio, 1885; on the staff of St. Mary's Hospital; aged 70; died, November 18, of myocarditis.

CHARLES JOSEPH HART, Pulaski, Ill.; St. Louis College of Physicians and Surgeons, 1910; aged 58, died, October 12, of chronic myocarditis.

EDWARD G. HEDRICK, Loraine, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1891; aged 66; died, November 24, in the Blessing Hospital, Quincy, of cerebral hemorrhage.

WILLIAM FRANKLIN HILSABECK, Windsor, Ill.; Rush Medical College, 1872; aged 84; died, December 6, of cerebral hemorrhage.

MARGARET C. BOOSING JOHNSON, Chicago; National Medical University, Chicago, 1896; aged 71; died, December 20, of perforating duodenal ulcer.

MARSHALL COLLIER MCINTIRE, Farmer City, Ill.; Hahnemann Medical College and Hospital, Chicago, 1879; aged 72; died, November 20, of arteriosclerosis and obliterative endarteritis.

MARIE S. SCHMIDT, Sheridan, Ill.; Northwestern University Woman's Medical School, Chicago, 1900; at one time clinical assistant in gynecology, Rush Medical College, Chicago; formerly on the staff of the Mary Thompson Hospital, Chicago; aged 67; died, November 15, of heart disease.

JULIA HOLMES SMITH, Chicago; Chicago Homeopathic Medical College, 1877; aged 91; died, November 10, in Winnetka, Ill., of myocarditis.

JOHANN DIETRICH TIEKEN, Piper City, Ill.; Washington University School of Medicine, St. Louis, 1879; a practitioner for 51 years; a Fellow, A. M. A.; aged 76; died suddenly, at his home, November 19, of heart disease.

The Doctor's Own Baby

Union City, N. J., Oct. 13, 1930

Whitney Payne Corporation,
Gwynedd Valley, Pa.
Dear Sirs:

I would appreciate it very much if you would send me samples of "Pheno-Cosan" to be tried on my baby who has had eczema for a period of seven months without being relieved by any medication.

Yours very truly,

(Signed by a physician).

Union City, N. J., Nov. 10, 1930

Whitney Payne Corporation,
Gwynedd Valley, Pa.
Dear Sirs:

I wish to thank you for your "Pheno-Cosan" which I used on my child who had a very stubborn case of eczema. Every medication possible was tried without success, and as soon as I started to use "Pheno-Cosan" the eczema cleared up and has not returned. I have also prescribed "Pheno-Cosan" in many cases of eczema in my practice with excellent results.

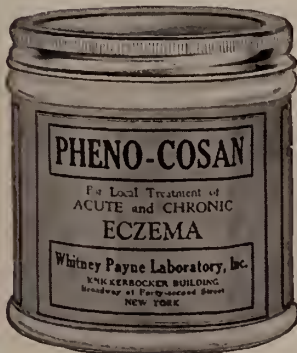
Yours very truly,

(Signed by a physician).

PHENO-COSAN may be safely used in infant cases as it contains no mercury. Physicians report equal success with PHENO-COSAN in the treatment of Ringworm of the Scalp, Ringworm of the Breast, Athlete's Foot, Golf Toes, etc. Physicians prescribe PHENO-COSAN as it is non-greasy, permits positive medication and requires no bandages.

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Interesting literature free to physicians.



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A UNIQUE feature of the Hinsdale Sanitarium is a fully equipped **work cure department**. Here patients become so fascinated with the various lines of handicraft work adapted to their condition that they forget their troubles and have less time to talk about their symptoms. Hydrotherapy, Electrotherapy, Manual Swedish Movements, Massage, Phototherapy and the outdoor life are regulated according to the needs of each patient. Scientific Dietetics is made a special feature. No tubercular or mental cases received. Complete X-ray department.

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Physicians are invited to visit the institution and personally investigate its merits. Send for circular giving full information.

MEDICAL STAFF

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J. H. Neall, M. D.

Mary Paulson Neall, M. D.
Head Lady Physician

OFFICERS

W. E. Abernathy, *Secy. & Treas. Manager*

N. W. Paulson, *President*
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CONTENTS

Editorials (See Extended Table of Contents For Titles)	81	Tryparsamide and Mercury in General Paralysis. O. A. Kibler, M. D., Chicago	117
ORIGINAL ARTICLES			
Progress in Pediatrics. George Edwin Baxter, M. D., Chicago	97	Thiosulphate of Gold and Sodium in Treatment of Pulmonary Tuberculosis. Leon Bernard, M. D., Paris, France	119
Mistakes in Diagnosis and Treatment of Goiter. Arnold S. Jackson, M. D., Madison, Wis.	103	Tuberculosis in Infants and Children. N. S. Zeitlin, M. D., Chicago	122
Treatment of Chronic Myocarditis. Don C. Sutton, M. D., Chicago	112	Obstruction of the Colon by Post-Operative Adhesions. Paul A. White, M. D., and Arthur A. Garside, M. D., Davenport, Iowa	124
Genito-Urinary Anomalies. Otis W. Britt, M. D., Waterloo, Iowa	108	Modern Therapy of Corneal Infections. Earl Gifford, M. D., Chicago	126
Spinal Anesthesia. Alvin M. Winograd, M. D., and Harold H. Rosenbloom, M. D., Chicago	114	Nerve Anastomosis for Relief of Facial Paralysis. Alfred Brown, M. D., Omaha, Neb.	130

(Continued on Page 10)

EIGHTY-FIRST ANNUAL MEETING AT EAST ST. LOUIS, MAY 5, 6, 7, 1931

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ILLINOIS MEDICAL JOURNAL

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Editorials

MEDICAL PROFESSION SHOULD CONTROL AFFAIRS MEDICAL

"Render unto Caesar the things that are Caesar's" knew never a more applicable tangent than in the necessity for the medical profession to retain control, direction, administration, and positive performance of matters medical at every angle of the present economic crisis and its ramifications.

Of these one of the most urgent is the necessity to supply medical services at limited prices to persons of limited means. The poor and the destitute of course deserve and receive the finest of medical and surgical services without charge. For parallel professional services the wealthy pay as a rule generous fees. Both of which ideas would seem to be in keeping with the basis of logic and equity. For the wealthy to pay for the cost of illness for the poor and destitute is another commendable trait.

But when the wealthy through ideas of mistaken philanthropy and open-heartedness, by means of endowed foundations, part pay clinics or corporations practicing medicine, endeavor to assume responsibility for the cost of illness to persons of self-respecting, wage-earning ability, the error is great and the responsibility involved quite reprehensible.

Yet this attempt at pauperizing the great middle-class—and of a verity it is nothing less than that—is but one of the many steps current in search of an avenue of relief for the strain of the cost of illness among persons of moderate incomes, or assets.

That this attempt is of the laity for the laity should speak with a brazen tongue of alarm into the ears and hearts of the self-centered physician who feels that economic problems of this nature are the burden for the other doctor and not for himself. There is no royal road to immunity in the days of the plague. Either the pest must be controlled or it will control the

community. The profession stands face to face with a menace not a chimera. The self-respecting citizen of moderate means has this problem that he must solve. He spurns and rightfully the patronizing charity of the wealthy laity. Yet he is manifestly unable—and sometimes a bit unwilling to pay for the alleged high cost of hospitalization and other service necessary in the care of the sick, as well as the bill for the doctor. Here is a community problem as vexatiously important to the public welfare as an outbreak of smallpox, diphtheria or typhus. And it is up to the doctors themselves to meet it, or to lose control of the practice of medicine. Neither dawdling nor shilly-shallowing will evade the issue.

The time is not far distant when what is now a dilemma will become an alternative. There is room for optimism in the knowledge that if physicians once realize that the laity is determined to have the problem solved that the doctors will take a leaf out of their experiences in other matters, where unheeded warnings have led them into economic and professional pits. Not a day is to be lost in the preparation of a plan that will solve the problem of this distribution and allotment of moderate priced medical services.

For already it begins to look as if this obvious problem would be solved through some plan that is laid out by lay agencies. Anything evolved from such a group, will here, as it has done elsewhere, leave the doctor in the role of the under dog, instead of standing at the helm, and he will be lucky to have voice and authority enough to howl even when he is kicked.

THE 1931 ANNUAL MEETING

The 1931 Annual Meeting of the Illinois State Medical Society to be held in East St. Louis on May 5, 6 and 7, 1931, should be a banner meeting of the Society. This will be a Southern Illinois Meeting as all of the 34 counties of Southern Illinois are joining together to make it a real meeting. East St. Louis has not been the host at a meeting of the Illinois State Medical Society for more than thirty years, and the St. Clair County Society is making every arrangement possible to prove themselves to be excellent hosts.

The exhibits, general headquarters and four of the scientific sections will be housed in the large, new Shrine Temples, one of the finest and best arranged buildings in the State, for meeting purposes. The official hotel for the meeting is the Broadview, a large and beautiful new building well adapted for the purpose. Dr. I. L. Foulon is General Chairman of the Committee on Arrangement, and Dr. G. C. Otrich, the secretary. These competent men have selected a well balance staff of St. Clair County physicians for their various committees, as follows:

General Chairman, I. L. Foulon, East St. Louis,
Secretary—G. C. Otrich, Belleville.

Contact Committee—F. Gunn, Chairman; W. Crotty, East St. Louis; J. Fulgham, East St. Louis; O. Klug, East St. Louis.

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Exhibits Committee—L. A. Ryan, Chairman; O. H. McCann, East St. Louis; H. H. Tanzer, East St. Louis.

Finance Committee—R. Tharp, Chairman.

Information and Hotels—J. J. Donahue, Chairman; C. Wilson, Belleville; W. Wilhelmj, East St. Louis.

Meeting Places—H. A. Cables, Chairman; M. E. Brennan, East St. Louis; John Gunn, Belleville.

President's Dinner—H. M. Voris, Chairman; C. E. Hill, East St. Louis; W. Crotty, East St. Louis; E. H. Holten, East St. Louis; L. E. Wedel, East St. Louis.

Publicity Committee—W. Griffith, Chairman; E. H. Wangelin, Belleville; R. Campbell, East St. Louis; T. V. Boyd, East St. Louis.

Reception Committee—M. E. Brennan, Chairman; C. E. Eisele, East St. Louis; L. L. Madden, East St. Louis; H. H. Hurd, East St. Louis; A. M. Aszmann, East St. Louis.

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Arrangements have been made with the leading hotels whereby all requests for reservations during the meeting will be referred to the Hotel Committee, so that all available hotel rooms will

be placed at the disposal of the Society, and so that an accurate record of all reservations will be had. Dr. J. J. Donahue, East St. Louis, chairman of this committee, will be pleased to make reservations for all members of the Society desiring same. It is hoped that these requests will be sent in as early as possible, so that no one will be disappointed.

We will give more information concerning the arrangements, and data relative to the meeting in the JOURNAL next month.

EXHIBITS AT THE 1931 ANNUAL MEETING

One of the interesting features of all modern medical meetings is the exhibits. At East St. Louis, we will have one of the finest exhibition halls in the state of Illinois. The spaces are all unusually large, and there will be uniform booth set-ups all ready to be occupied by the exhibitors. There will be an unusually large number of fine scientific exhibits this year, and any member of the Illinois State Medical Society who has something that he would like to exhibit, that is free from all advertising, should make application at once with the Secretary, stating the nature of the exhibit, naming the features of general interest, and proper space for same will be allocated. Only commercial exhibits that are on the approved list of the American Medical Association will be shown at the meeting. Arrangements are being made whereby our exhibitors will be well cared for at the meeting. Every exhibit space is unusually adapted to suit the convenience of our exhibitors, and each is a desirable space, regardless of price.

We hope that all physicians attending the meeting will look over the many exhibits to be shown both commercial and scientific exhibits, and see the improvements that are being made in all lines of accessories from year to year.

Any ethical prospective exhibitors interested in having a display at the East St. Louis Meeting, on May 5, 6 and 7, 1931, should write to the Secretary, Dr. Harold M. Camp, Monmouth, Illinois, at once for complete information, diagrams and application for space. These will be promptly furnished by return mail.

A synopsis of each exhibit will be given in two issues of the ILLINOIS MEDICAL JOURNAL before

the meeting, and will also be printed in the official program of the meeting.

On account of the fact that the meeting will be held on the state line, across the Mississippi from one of the great Metropolitan Districts of America, we will have hundreds of visitors at the meeting from Missouri, and other states as well, which should be an additional appeal to prospective exhibitors.

The Illinois State Medical Society has an unusual appeal this year to prospective exhibitors, and the attendance should be unusually large. The St. Louis Medical Society, and the Missouri State Medical Association have given every assurance that they will aid our Society in making the meeting a successful one, and will give it much publicity on the West Side of the river.

It is hoped that all members of the Illinois State Medical Society will favor our exhibitors, and make them feel that it is worth the expense and effort to have exhibits at the Annual Meeting of the Illinois State Medical Society.

DOCTORS WISHING TO PRESENT PAPERS BEFORE THE MEDICAL SECTION OF THE ILLINOIS STATE MEDICAL SOCIETY

Physicians desiring to present papers before the medical section of the Illinois State Medical Society are urgently requested to send their applications at once. The annual meeting is held early in May, the interval between now and the meeting is very short. Applicants are advised to act quickly. The program is being made up, only a limited number of papers can appear on the program.

The officers of the section are Lowell D. Snorf, chairman, 25 E. Washington Street, Chicago, and Warren Pearce, Secretary, Quincy.

DOCTORS WISHING TO READ PAPERS BEFORE THE SURGICAL SECTION AT THE STATE SOCIETY SHOULD QUALIFY AT ONCE

Those wishing to read papers before the surgical section at the State meeting at East St. Louis, next May, will kindly communicate with the officers of this section. Dr. J. H. Bacon, Peoria, Ill., Chairman; Dr. Jas. T. Gregory, 826 E. 61st St., Chicago, Ill., Secretary.

PROTEST NOW AGAINST THE PROPOSED JONES-COOPER MATERNITY BILL

Protest *now* against the purposed Jones-Cooper bill now up in the House of Representatives instead of waiting until this great national injustice becomes a law.

This continuation of the Sheppard-Towner Act aimed to revive and to perpetuate federal control over state activities in the field of maternal and infant hygiene under the direction of the Children's Bureau is now in the House of Representatives where it has been referred to the Committee on Interstate and Foreign Commerce. Protests against this bill should be filed immediately by the profession with members of the House of Representatives as well as against a bill of similar purport, H. R. 12995, providing that the federal government shall co-operate with the state in promoting the general health of the rural population of the United States and the welfare and hygiene of mothers and children. The Jones-Cooper bill was passed by the Senate, Jan. 10. On Jan. 20 the Committee on Interstate and foreign commerce of the House gave this and the similar bill a hearing. Neither of these bills nor any similar legislation should be enacted. All such legislation has already been condemned by the House of Delegates of the A. M. A.

THE AMERICAN MEDICAL ASSOCIATION ADOPTS TELLING RESOLUTION AGAINST PERPETUATING THE SHEPPARD-TOWNER MATERNITY AND INFANCY ACT

At the Detroit meeting of the American Medical Association the following resolutions were offered by the Board of Trustees adopted by the House of Delegates on recommendation of the Reference Committee on Legislation and Public Relations:

WHEREAS, The American Medical Association is in entire sympathy with the cooperative efforts of federal and state agencies to establish and develop official local health organizations for the conduct of those activities which are generally recognized as the proper functions of such health departments; and

WHEREAS, The usurpation of any public health function by any lay bureau of the federal government which, through allotments of federal subsidies for special health service, seeks to duplicate and administer duties and functions

already placed by law on the United States Public Health Service; and

WHEREAS, The United States Public Health Service has in the past efficiently discharged its duties with respect to such matters and now, through recent reorganization, has been provided with enlarged facilities for carrying on such work; and

WHEREAS, An effort is now being made to revive and perpetuate the federal subsidy system established under the defunct Sheppard-Towner Maternity and Infancy Act, which authorized the payment of state subsidies over a fixed period of years, on an arbitrary and irrational basis of population, without reference to the ascertained sanitary and health needs of the several states or to their ability to meet their own needs; and

WHEREAS, The payment of such subsidies was made dependent on the surrender by the legislatures of the several states, to the federal government, of the right to supervise and control state activities in the selected field of public health; and

WHEREAS, This system after seven years' trial under the administration of a lay bureau effected no improvement in the field of public health in which it was operative, notwithstanding the expenditure of more than 11 million dollars of federal and state money; and

WHEREAS, In the judgment of the House of Delegates of the American Medical Association, any such system tends to destroy local initiative and sense of responsibility and to pay federal funds for purposes named by the federal government to states not in need of federal aid; be it

Resolved, That the House of Delegates of the American Medical Association condemns as unsound in policy, wasteful and extravagant, unproductive of results and tending to promote communism, the federal subsidy system established by the Sheppard-Towner Maternity and Infancy Act and protests against the revival of that system in any form;

Resolved, That it is the sense of the House of Delegates that each state should be left free to formulate its own health program, with the co-operation of the United States Public Health Service if desired by the state, free from any inducement or compulsion in the way of federal reward or coercion;

Resolved, That any legislation involving co-operation between the federal government and

the several states in the field of public health must, in the interest of efficiency and economy, in the judgment of the House of Delegates, be administered under the joint supervision and control of the United States Public Health Service and the state health authorities; and be it further

Resolved, That copies of these resolutions be sent immediately to the President of the United States and to every Senator and Representative in Congress.

A supplementary report to the above was adopted at the same meeting:

Resolved, That the Board of Trustees be requested to initiate as speedily as practicable a movement to enlist every state medical association and county medical society, and every member of the medical profession, in a movement to carry into effect the policy of the American Medical Association, as defined in the preceding resolution, with respect to co-operation between federal and state governments in public health activities.

Both resolutions were referred to the committee on legislation and Public Relations. In approving the resolutions the committee made the following notation:

Your committee has carefully considered the excellent resolution presented by the Board of Trustees relative to federal aid for maternal welfare.

The resolution shows evidence of most thorough study and careful preparation.

The committee feels that the beneficial effect of this resolution when passed by the House of Delegates of the American Medical Association should have a far-reaching beneficial effect and should be of great assistance to the profession throughout the United States in its campaign of education of the public in which we are endeavoring to show the menacing effect of paternalism so beautifully exemplified in the so-called Sheppard-Towner and similar forms of legislation.

For a period of ten years the ILLINOIS MEDICAL JOURNAL has fought consistently against the enactment in this country of all forms of legislation as typified in the Sheppard-Towner Act.

A similar legislation to the maternity and infancy statute is an invitation to progressive en-

croachment by the Federal Government on the rights and independence of the state. It opens the way to snooping interference by Washington with the private affairs of domestic life.

The evil of federal interference might be tolerated if it could be shown that the benefits to mankind were sufficiently large and could be obtained in no other way but nothing of this sort has been shown; only recently we demonstrated in the columns of this journal that Illinois, one of the five states that refuse to submit to Sheppard-Towner law dictation had the lowest infant and maternity mortality rate in the country.

The Sheppard-Towner law has been wasteful, extravagant and unproductive of results, and has a tendency to promote communism; and we believe that it should be definitely shelved so that each state may be left free to formulate its own health program with the co-operation of the United States Public Health Service if desired by the State, free from any inducement or compulsion in the way of federal reward or coercion. Our attitude on Sheppard-Towner and similar forms of legislation is that of ex-president Coolidge's doctrine of state rights and responsibility.

A FEW MORE FIGURES SHOWING THAT THE MATERNITY ACT WAS A FLOP EVERYWHERE EXCEPT AMONG THE JOBHOLDERS

KENTUCKY AND VIRGINIA MUST FACE STATISTICS THAT SHOW INCREASED INFANT AND MATERNAL MORTALITY EVEN WHEN MATERNITY ACT WAS FUNCTIONING WITH EASE AND EXPERIENCE

Kentucky and Virginia have had increases in the deaths of mothers and children during the nine years of operation of the Sheppard-Towner act. On the contrary, Illinois, that refused to accept the mis-cast legislation, has a reduced rate of mortality in these two classifications.

Health officers in Virginia and in Kentucky have been vociferous and extravagant in their laudation of the Sheppard-Towner legislation.

Figures received recently show that as late as 1928 there were marked increases over 1927.

In Kentucky in 1927 the infant mortality rate was 60. In 1928 this rose to 71. The maternal

mortality rate in 1927 was 49. In 1928 it rose to 60.

In Virginia, the infant mortality rate that was 75 in 1927 rose to 76 in 1928. During this same period the maternal mortality rate rose to 75 from 62.

What is true of statistics in these two states that championed so loudly the Sheppard-Towner legislation is coincident with results throughout the area leaning on this socialistic federal aid crutch. Throughout the entire birth registration area the figures rose from 65 in 1927 to 68 in 1928 where infant mortality was concerned and to 69 from 65 in the case of maternal mortality.

Here indeed is food for thought. This increase came not during days of experimentation and trial when it might have been expected that mistakes and errors or lack of routine might have worked havoc with the results but when the maternity legislation was functioning with ease.

It is another example of trying to make a crow sing like a nightingale. Inherent merit to function up to its advertised qualifications does not dwell in the Sheppard-Towner bill, nor in any other maternity act that has been gold-bricked throughout the commonwealth. Such unconstitutional legislation fails not so much because it is unconstitutional but because it is inept, unwarranted and unqualified. Unscientific in its initial premise it is bound to wither and fall when adjudged by scientific standards and put to the acid test of saving life.

Even if such legislation were scientific, which it is not, or constitutional, which it is not, nor can ever be and rest in consonance with the spirit of 1776, there is but one theory by which it might be justified. And this theory is that the respective and individual states in the union would be lacking in intellectual, moral and financial resources for the care of their purely local problems. Community death rate will always remain a local problem, basically, at least.

As yet no State has reached that depth of slattern being. But if there is a continuance of Federal policy of purchasing or of otherwise usurping the power to intermeddle in purely local affairs, the debauchery of the states and of their sense of irresponsibility must follow as surely as the night the day.

This deplorable statistical situation as re-

vealed in returns as cited from Kentucky and Virginia is the index to an even more deplorable trend in vital conditions. It is the hand-writing on the wall, bold enough to startle the most sanguine.

Much as we would like to believe in Santa Claus, truth remains that "jolly old Kris Kringle" with his package of gifts and sweetmeats is but a fiction. And Federal Aid of the sort involved in the maternity legislation programs is a bigger myth than he.

If the states must have government aid in their health programs here is proof positive of the crumbling of the outer line of defense of first principles of this democracy. Instead of lending support to programs looking to a revival of the maternity act, the scientific, rational, and true American thing to do is to exert unremittingly all possible influence towards restoration in practice of the principles of American government. The spine of such principles lies in the precept that responsibility is coincident only with power, and that like freedom, power without responsibility becomes nullified.

Almost ad infinitum might examples be cited of the failure of the maternity act to fulfill its promises. But what is true of Kentucky and Virginia is true of every other community in which this mistaken panacea had sway. The maternity act was a flop for everybody but the job holders who got fat salaries under its flag. Illinois can thank its stars that whatever else its burdens may have been during the last decade the maternity act was not one of them. It will pay a few other communities to take a leaf out of Illinois' books in this regard.

MEN WHO HAVE ACHIEVED FAME OTHER THAN MEDICINE

Dr. Bernard S. Maloy combines with active practice the distinction of having compiled and published notable work on Medical Jurisprudence as well as Fame as Bibliophile.

Dr. Bernard S. Maloy's recent work, "Legal Anatomy and Surgery," has enjoyed unprecedented popularity among the legal profession, and is still a best seller. The book was well worth the ten years expended in its process of making, and the concentration of thought and interpretation of experience combined in its production. The text is easy and fluent in its

style and makes pleasant and instructive perusal even by the lay reader. For the professional man and savant it is a gold mine.

Not only did Dr. Maloy compose the text unaided but many of the beautiful illustrations which enrich the pages are his. This accomplished physician is a litterateur and skilled artist. His work in art compares favorably with that produced by other well known scientific and anatomical draftsmen. It is interesting to note in this connection that a great part of these drawings were accomplished with the aid of a magnifying glass while the finished product is as distinct and smooth as a steel engraving. Surely, there are not many doctors who can draw well enough to illustrate a book!

For a number of years Dr. Maloy conducted classes in anatomy, surgery and kindred subjects for lawyers. For this purpose he spent a great deal of time in courts where he sat with the lawyers and prompted them in their examinations of witnesses. In this way Dr. Maloy found the opportunity of simplifying medical jurisprudence. His book is a direct outcome of the time so consumed.

A native Hoosier, he was born in Rensselaer, Indiana, but was graduated from the Medical Department of the University of Illinois. Dr. Maloy entered into active practice and soon achieved the reputation of a leader in his chosen profession. Especially did he acquire note by his management of pneumonia, in the treatment of which dread disease he has most remarkable success. During the great influenza epidemic of 1918-1919, while an acting surgeon in the U. S. Public Health Service, he evidenced remarkable technique in such therapy and bore out his reputation for medical skill and judgment of the man.

Like other able men who accomplish much, Dr. Maloy is many sided. Notwithstanding the pressure of his professional and literary work, he has found time to accumulate one of the best classical, ecclesiastical and antiquarian libraries in the country. He has shown rare judgment in the selection of the books. This library is especially rich in volumes of the famous Bohn edition, which were published in England about 1840 and have been out of print for many years.

Literary connoisseur as is Dr. Maloy, he says:

"These old authors are like wine properly aged." He has read and reread many of these books, the greater part of them, so he claims, being wonderfully interesting and instructive. His marginal notes have been numerous. These together with many cross-notes are of great assistance as a means of reference. All his writings are enriched and illuminated by apt quotations from these literary giants of antiquity. Much of Dr. Maloy's philosophical outlook upon life is a direct result of his deep and inspiring study of the famous authors of ancient times.

It is interesting to peer into the shelves of this valuable library. Included in the remarkable collection are the works of Aristotle, Homer, Aristophanes, Hesiod, Callimachus, Theognis, Thucydides, Xenophon, Demosthenes, Plato, Catullus, Tibullus, Herodotus, Strabo, Sophocles, Aeschylus, Sallust, Plautus, Florus, Pindar, Euripides, Cicero, Horace, Ovid, Virgil, Lucan, Terence, Lucretius, Josephus, Tacitus, Plutarch, Persius, Juvenal, Epictetus, Martial, Suetonius, Pliny the Elder and Pliny the Younger, Livy, Petronius, Propertius, Aristaenetus, Athenaeus, Apuleius, Eusebius, Socrates, Bede, Ingulf, Theodoret, Evagrius, Mallet's Northern Antiquities, Matthew Paris's Chronicles, Roger of Wendover, William of Malmsbury, Marco Polo's Travels, Pepys' Diary, Petrarch, Dante, Cellini, Tasso, Rabelais, and dozens of others. What a wealth of wisdom and literary richness!

Naturally, from one so literally inclined as this we would expect to find some poetic ability also; and in this expectation we are not disappointed. The poetic muse also has visited this many-sided man, and we find under his name lines of real worth.

Such men as Dr. Malloy are leavening spots in human nature.

THE INCONSISTENCY OF OUR OFFICIAL FAMILY AT WASHINGTON

To ask for millions of dollars for maternity work, an added burden of millions of dollars upon the already wage-cut, income-slashed heavy tax-payer in these troublous times is much like overturning a war-chest to buy lace-paper napkins for the tearooms in the old home town. Congress is being opposed by the nation's chief executive in its efforts to meet the unemployment situation by appropriating money to take

care of mothers and children starving for food, and suffering for shelter and clothes in the drought stricken sections. Yet Congress is being besought by the same executive to lay on more taxes to send out instructors to tell women how to cook food that they have not got; to sew baby clothes from material that they can not procure and how to keep ship-shape shelter that is not theirs.

The paradox is neither pretty nor philanthropic. On the other hand it is both parlous and political. Political! "Ay, there's the rub." Politics not only makes strange bedfellows, but plays the purse false and thumbs the nose at reason, judgment and the crying need. The Sheppard-Towner bill in a new guise and with a fresh Punch and Judy face knocks again at the tax-payer's door. It knocks with a stout political gavel and makes a stronger and a louder noise than do the pitiful palms and fists of destitute mothers and children. It all depends on whose nest is to be feathered as to where the plums go.

"Ah, consistency thou art a jewel." After all it is not woman but a political grabfest statute of which it should be written, "Fangh, thou, poor inconstant jade."

DR. HEMENWAY DIES

On January 1, 1931, Dr. Henry Bixby Hemenway died at the age of 74. For eleven and one-half years Dr. Hemenway filled the position of medical assistant in the division of vital statistics of the State Department of Public Health and in that capacity had charge of classifying deaths according to cause. He first came into State health service on February 12, 1918, as a district health superintendent, a position he filled for about 18 months.

The place left vacant by Dr. Hemenway's death is one of the most important in the division of vital statistics. Proper classification of deaths requires a wide knowledge and great skill relating both to statistical practice and to medicine.

In addition to his work in the Department of Health, Dr. Hemenway produced a number of books and many scientific articles on public health. He was well informed on medico-legal matters, especially in the field of public health, his writings on that subject having been freely

quoted in certain decisions of the Illinois Supreme Court.

Credit was given to Dr. Hemenway for discovering the source of a great scarlet fever epidemic which swept the metropolitan area of Cook County in 1907 and he was commended for the courage which he displayed in connection with handling the situation.

POORLY SELECTED CHARITY IS WORSE THAN NONE—A PERIL RATHER THAN A PHILANTHROPY.

"And the greatest of these is charity!"

But there's no philanthropy in sending dancing shoes to a cripple or blooms to a blind man.

Quite in line is the misdirected benefaction of wealthy, kind-hearted persons, who with all the generosity of those highly impressionable nervous systems frequently prevalent among the wealthy laity let their nerves and their hearts get the better of their sense of justice, economics, and essential need.

When such a mishap occurs what do we find in their midst?

Only too often there occurs a "medical institute" or a "free health center" for all sorts of patients, whether these be needy and unable to pay or rich and parsimonious.

Noble in purpose as may be these endeavors on the part of the ill-advised laity, Heaven knows their results are often over productive of exactly the opposite of what was intended. Instead of helping the destitute poor to rise to better stations such ill-advised charities tend to submerge the self-respecting poor into the path and swamps that lead to pauperization.

EDUCATIONAL COMMITTEE OF THE ILLINOIS STATE MEDICAL SOCIETY ENJOYS A REPUTATION OF BEING AN AUTHORITY ON STATE MEDICINE. STATE MEDICINE ATTRACTS ATTENTION OF COLLEGE DEBATING TEAMS.

During the month of January, the Educational Committee of the Illinois State Medical Society has supplied facts, statistics and other material relative to the true nature of state medicine to debating teams of various colleges including Northern State Teachers College, and Michigan Normal College of Kalamazoo, both of

Michigan; De Kalb Normal, Illinois and Greenville College.

For the month of December the educational committee supplied package libraries to debaters in seven colleges as follows: Monmouth College, Macomb Normal, Bradley College, Shurtleff College, all of Illinois; Northern Michigan State Normal, Marquette, Michigan; University of Toledo, Toledo, Ohio; Purdue University, Lafayette, Indiana.

ILLINOIS CONGRESS OF PARENTS AND TEACHERS GIVES VALUABLE SERVICE TO EDUCATIONAL COMMITTEE

At the request of the Educational Committee, Mrs. N. G. Symonds of Hinsdale, on Feb. 3, an officer of the Illinois Congress of Parents and Teachers addressed a joint meeting of the Woman's Auxiliary to the Vermillion County Medical Society and the Danville Parent Teacher Associations. Mrs. Symonds discussed the "Summer Round-Up Campaigns" sponsored by her organization. She has been an active supporter of the work of the Educational Committee in promoting understanding between various local Parent Teacher Association and respective County Medical Societies.

THE MONTH OF JANUARY PRESENTED NEW OPPORTUNITIES TO THE EDU- CATIONAL COMMITTEE

31 POPULAR HEALTH TALKS were given during the month before Women's Clubs, Church Groups, Farmers' Institutes, Young Mothers' Clubs, Parent Teacher Associations, Y. M. C. A's. Among the subjects presented were—Religion and Health, Cancer, Periodic Health Examinations, Sex Hygiene, Child Psychology, Mental Hygiene, Communicable Diseases, Child Health, Early Detection and Correction of Defects, Animal Experimentation, Sheppard Towner Legislation.

35 RADIO TALKS WERE GIVEN FROM WGN and WJJD.

9 SCIENTIFIC PAPERS SCHEDULED:

John A. Wolfer, "Surgery," Warren County Medical Society.

William H. Holmes, "Modern Conceptions of Nephritis," Warren County Medical Society.

D. K. Rose, St. Louis, "Interpretation of Symptoms in Differential Diagnosis of Urinary Infection," Union County Medical Society.

Lindon Seed, "The Determination of Surgical Risk in Exophthalmic Goiter," Rock Island County Medical Society.

Wilber E. Post, "Nephritis," Will-Grundy County Medical Society.

George deTarnowsky, "Carcinoma of the Colon," La Salle County Medical Society.

Aaron Arkin, "Cardio Vascular Disease," La Salle County Medical Society.

Harry M. Hedge, "Some Common Diseases of the Skin," Will-Grundy County Medical Society.

John F. Carey, "Diseases of the Urinary Tract in Infants and Childhood," Iroquois County Medical Society.

FILMS: The Bureau of Mines, Pittsburgh, Pennsylvania, loaned the Educational Committee its new film on "Carbon Monoxide" to use in Chicago Factories during the month of January. The film was used by the Wilson Avenue Y. M. C. A. before nine groups of factory employees on the North Side.

PRESS SERVICE:

549 ARTICLES RELEASED TO NEWSPAPERS:

355 Regular Press Releases.

67 Newspapers, re meeting of La Salle County Medical Society.

97 Newspapers, re meeting Vermillion County Medical Society.

27 Community Newspapers, re meetings Branches of Chicago Medical Society.

3 Association of Commerce, re meetings Chicago Medical Society.

9 Health Educational Articles written:

Measles, a Highly Contagious Disease.

First Aid in Automobile Accidents.

Diabetes.

Pneumonia.

Discovering Tuberculosis in Time.

Nutritional Anemia of Childhood.

Stone Formation in the Urinary Tract.

Our Changing Food Habits.

Guard Against Influenza.

JEAN McARTHUR, Secretary.

ANNUAL MEETING OF THE AMERICAN ASSOCIATION FOR THE STUDY OF GOITER.

The meeting of the American Association for the study of goiter will be held at Kansas City, Missouri, April 7, 1931. A program and details of the meeting can be procured by writing to Arnold Jackson, M. D., chairman of the Program Committee, Jackson Clinic, Madison, Wisconsin.

THE AMERICAN ASSOCIATION FOR THE STUDY OF GOITER OFFERS AN AWARD OF THREE HUNDRED DOLLARS

The American Association for the Study of Goiter again offers an award of three hundred dollars (\$300.00) for the best essay based upon original research work on any phase of goiter presented at their annual meeting in Kansas City, Mo., April 7th, 8th

and 9th, 1931. It is hoped this offer will stimulate valuable research work, especially in regard to the basic cause of goiter.

Competing manuscripts must be in the hands of the Corresponding Secretary, J. R. Yung, M. D., Terre Haute, Indiana, not later than April 1, 1931, to permit the award committee sufficient time to examine all data. Manuscripts arriving after this date will be held for the next year or returned at the author's request.

First award of the 1930 annual meeting held in Seattle was given Dr. William F. Rienhoff, Jr., of Johns Hopkins University, Baltimore. Doctors O. P. Kimball of Cleveland, O.; E. P. and D. R. McCullagh, Cleveland, Clinic Foundation, Cleveland, O., and Robert P. Ball of the University of Louisville, received honorable mention.

ANNUAL MEETING OF THE AMERICAN COLLEGE OF PHYSICIANS

The Fifteenth Annual Clinical Session of the American College of Physicians will convene in Baltimore, Maryland, March 23-27, and in Washington, D. C., March 28, 1931. The organization holds this session in Baltimore through the cordial invitation of the Johns Hopkins University School of Medicine, the University of Maryland School of Medicine, the Medical and Chirurgical Faculty of the State of Maryland, the Baltimore City Medical Society and the further cooperative interest manifested by the various Baltimore hospitals and civic societies. Held in important medical centers, these Clinical Sessions constitute, perhaps, the most important postgraduate week in Internal Medicine each year. Those who attend the meeting will find ample in the way of clinical, laboratory, research and historical interest, well to repay them for the time spent in making the journey. Dr. Sydney R. Miller, of Baltimore, President of the American College of Physicians, has prepared the program for the General Scientific Sessions, while Dr. Maurice C. Pincoffs, General Chairman, also of Baltimore, has arranged the program of clinics, demonstrations, entertainment, etc.

As an added feature of the Clinical Session this year, an additional day, March 28, will be spent in Washington, D. C., where a special program of clinics and inspection tours has been arranged under the auspices of the Medical Departments of the U. S. Army, U. S. Navy, U. S. Public Health Service and Georgetown University. Dr. William Gerry Morgan is acting as Chairman of the Washington Committee, and is being assisted by Admiral Charles E. Riggs, Surgeon General of the Navy; General Merritte W. Ireland, Surgeon General of the Army; General Hugh S. Cumming, Surgeon General of the U. S. Public Health Service; Dr. William A. White, Director of the Government Hospital for the Insane; Dr. John A. Foote, Dean of the Medical Department of Georgetown University; Dr. Ales Hrdlicka, Director of the Department of Zoology of the National Museum; Dr. Roy

Adams, Chief of the Medical Service at Mt. Alto Veterans' Hospital; Dr. W. H. Hough, President of the Medical Society of the District of Columbia; Dr. C. B. Conklin, Secretary of the Medical Society of the District of Columbia; Dr. George W. McCoy, Director of the U. S. Hygienic Laboratory, and Colonel Charles R. Reynolds, Commandant of the U. S. Army Field Hospital School of Carlisle Barracks.

The entire program of the Clinical Session is characterized by new subjects, new authors and wide geographic representation. It is significant that the Committees have attempted carefully to avoid repetition of subjects and authors, as has so often been the case in previous years, not only on the program of the American College of Physicians, but on the program of a great many medical organizations. On the General Scientific Programs there will be forty-five or fifty selected formal papers. Symposia on blood diseases, oxygen therapy, diseases of the liver, recent advances in endocrinology with particular reference to the newer work on supra-renal extracts, myocarditis, and several other subjects have been arranged. At Baltimore's many modern and excellently operated hospitals, clinics, ward-walks, laboratory demonstrations and the like will be held. Johns Hopkins Hospital and Medical School, under Dr. Alan M. Chesney, Dean, and a specially appointed Committee, will place at the disposal of the College all of its facilities and offer a program of great interest. Additional hospitals, such as the Union Memorial Hospital, St. Agnes Hospital, at which Dr. Joseph C. Bloodgood does so much of his work, the Municipal Hospitals, and several of the more private institutions, such as the Howard A. Kelly Hospital, noted particularly for its radium activities, and the Sheppard and Enoch Pratt Hospital, which is one of the most modern dealing with psychiatric problems, and many others will provide programs of clinics.

Hotel headquarters will be at the Lord Baltimore Hotel, while general headquarters, at which the registration of members, commercial exhibits and all general sessions will be held, will be The Alcazar, Cathedral and Madison streets, Baltimore. Transportation on the certificate plan of reduced fares will be available to all physicians and dependent members of their family from all parts of the United States and Canada. A special program of entertainment has been arranged for visiting ladies. The Convocation for the induction of new members, as Masters or Fellows, will be held on Wednesday evening, March 25, and the Annual Banquet will be held on Thursday evening, March 26. The Business Meeting, at which reports of administration and elections for the new year will take place, will be held during the forenoon of Thursday, March 26.

Mr. E. R. Loveland, 133-135 S. 36th Street, Philadelphia, is the Executive Secretary of the College, and it is to him that requests for further information or programs should be addressed.

Correspondence

THE ILLINOIS STATE MEDICAL SOCIETY OPPOSES THE PASSAGE OF THE JONES-COOPER MATERNITY BILL

The following is a copy of a telegram sent by the president of the Illinois State Medical Society to the chairman of the House Committee on Interstate and Foreign Commerce of the House of Representatives, Washington, D. C. The Bill is before this committee for public hearing and for recommendation:

NITE LETTER—JANUARY 17, 1931

Chairman of the House Committee on Interstate and Foreign Commerce, House Office Building, Washington, D. C.

Illinois State Medical Society opposes the passage of Cooper bill H. R. 12995 and asks that your committee consider this statement of studied opinion at its hearing of Tuesday, Twentieth. A Federal Health Coordinating Board is an unwarranted and unwise infringement upon the work of the Public Health Service of the Treasury Department. No need exists for the embarrassment of that service. We feel that the proposal emanates from a school of social thought which can never be successfully incorporated into our fraternal type and dual form of Government but which would presently result in social revolution if not checked. We believe that fifty-fifty subsidy of State Legislatures is a cruel and unusual infliction upon State Legislaturesmen. We know that the Public Health Service already is cooperating with State agencies of health and we hope that it will never be forced to discriminate between rural health and urban health as is prescribed in section three. This Federal Service has never yet been forced to subsidize State Legislatures as is proposed in lines seventeen, nineteen of page three of the bill and we think such a proposed subsidy unwarranted and dangerous for this Government. To Section B of article 3 we object upon the ground that no bureau of an Economic department has right to infringe upon the activities of a federal health service or has presented any constitutional reason for the asking of any health fund appropriation. Confusion of health with economics is bad for health. On page six under Section five we read a prescribed accept-

ance of an unwise and discredited and expired and inadequate and communistic Sheppard-Towner Act of Nineteen Twenty One, which was repudiated for cause by the last Congress in Nineteen Twenty-nine. On page ten in Section ten we think we read calamity for all adequate health effort in that the only member of the prescribed board who is educated to know health considerations is ordered voiceless by the bill and we find such a provision to be thoroughly objectionable. That the same page and section should provide in lines thirteen to eighteen of page ten that the president may overrule encourages us to beg that this executive right be admitted in the first place and that the bill be relieved of its confusion by striking out all and everything except adequate and plentiful appropriation for the Public Health Service. We believe that Section thirteen on page eleven discriminates by omission against the Alaskan Territory and the Philippine protectorate, and we protest any such mistakenly social and loosely drawn proposal becoming a law in a fraternal United States.

WILLIAM D. CHAPMAN, President,
Illinois State Medical Society.

IN ILLINOIS OSTEOPATHS AND CHIROPRACTORS NOT AUTHORIZED TO ADMINISTER TOXIN, ANTITOXIN OR DO VACCINATION STATE OF ILLINOIS LAW DEPARTMENT SPRINGFIELD

Oscar E. Carlstrom,
Attorney General

December 31, 1930.

FILE NO. 2993.

MEDICINE AND SURGERY:

Osteopaths and chiropractors not authorized to administer toxin-antitoxin or vaccination.

Andy Hall, M. D.,
Department of Public Health,
Springfield, Illinois.

Dear Sir:

I am in receipt of your letter of December 23rd, in which you state:

"In some parts of the State osteopaths are advertising that they will immunize children against diphtheria

with toxin-antitoxin furnished by the State Department of Public Health.

Enclosed find a facsimile of the license issued to chiropractors and osteopaths. What I would like to know is:

1. Whether persons to whom such licenses are issued are authorized to immunize children with toxin-antitoxin which requires an injection with a syringe?

2. Whether they are authorized to vaccinate against smallpox which requires a slight surgical procedure?

3. I would like to know if the Department of Public Health has a right to withhold issuing its biologics to persons practicing under a limited license such as is issued to osteopaths and chiropractors.

4. I would also like to know if persons holding licenses to treat human ailments without drugs or surgery, violate the law when they use biologics to prevent or cure disease and hold themselves out to the public that they will administer State biologics to immunize individuals.

5. I would also like to know if such practitioners subject themselves to prosecution and penalty for using such biologics, or hold themselves out as authorized to use such remedies. I would also like to know the nature of the penalty provided for by law."

You have submitted a copy of license issued by the Department of Registration to an osteopath under the provisions of the Illinois Medical Practice Act; also, a copy of a license issued to a chiropractor under the same Act. Both of these copies contain the provisions that the licensee—

"Is entitled to treat human ailments without the use of drugs or medicine and without operative surgery." These licenses were issued under clause 2 of section 11 of the Medical Practice Act, found at section 11 of chapter 91, Smith-Hurd's Illinois Revised Statutes, 1929.

Toxin-antitoxin is defined by Gould's Medical Dictionary, 2nd Edition, Scott, as follows:

"A mixture of diphtheria toxin and its antitoxin; it is used as a prophylactic vaccination against diphtheria."

Antitoxin is defined by the same authority as follows—

"1. A counterpoison or antidote elaborated by the body to counteract the toxins of bacteria. According to some authorities, antitoxins are, like the toxins, bacterial products. Antitoxins are used in the treatment of certain infectious diseases and also to confer immunity against these diseases.

2. The commercial name for a fine white powder said to be a coal-tar product and used as an analgesic and antipyretic."

Both toxin and antitoxin are listed under the heading of biologics in the United States Pharmacopoeia, which is a collection of formulas and methods for the preparation of drugs and a book

of such formulas under such name is recognized as a standard. The same medical dictionary defines a drug as—

"A substance used as a medicine."

The United States Food and Drug Act of 1906 defines a drug as—

"Any medicine for external or internal use, or both."

From a consideration of these various definitions it appears to me that toxin-antitoxin is a drug or medicine and in answer to your first question I am, therefore, of the opinion that since an osteopath or chiropractor has a license to "treat human ailments without the use of drugs or medicine" he is not authorized under such license or under the statutes of this State, to immunize children with toxin-antitoxin which requires injection with a syringe.

Vaccination is the inoculation with the virus of cowpox in order to protect against smallpox. See: Gould's Medical Dictionary, 2nd Edition, Scott.

Vaccine virus is the morbid principle of cowpox, which acts as a preventive of smallpox, and is, of course, a different article from antitoxin. See: Words and Phrases, 1st Series, Vol. 8, page 7266.

Vaccine used in vaccination is a lymph from a cowpox vesicle. See: Gould's Medical Dictionary, 2nd Edition, Scott.

This substance, used in the vaccination against smallpox, is listed in the United States Pharmacopoeia under the title of "Biologicals" and by reason thereof the same appears to me to come within the meaning of "drug" or "medicine" within the meaning of these terms as above described and, therefore, the osteopath or chiropractor is not authorized to vaccinate against smallpox.

In considering your question number three, I call your attention to section 35 of chapter 111½, Smith-Hurd's Illinois Revised Statutes, 1929, which provides in part as follows:

"It shall be the duty of the Board of Health of the State of Illinois to appoint one agent in the county seat of each county in the state who shall have for distribution, as herein provided, diphtheria anti-toxin, certified to by the Board of Health of the State of Illinois, it being the duty of such agents to sell such anti-toxin at a fair and reasonable price. * * *"

I also direct your attention to clause 7 of paragraph 55 of the Civil Administrative Code of Illinois, found at section 55 of chapter 127,

Smith-Hurd's Illinois Revised Statutes, 1929, which provides that the Department of Public Health shall have power—

"To purchase and distribute free of charge to citizens of the State diphtheria antitoxin, typhoid vaccine, small-pox vaccine and other sera, vaccines and prophylactics such as are of recognized efficiency in the prevention and treatment of communicable diseases."

The two provisions of the statute last above quoted should be construed together under the well-known principle of statutory construction that,

"All consistent statutes which can stand together, though enacted at different dates, relative to the same subject, and hence briefly called statutes *in pari materia*, are treated prospectively and construed together as though they constituted one act." See *People v. Cowen*, 283 Ill. 308.

Since, under the Administrative Code, it is the duty of the Department of Public Health to purchase and distribute free of charge to citizens, antitoxin, etc., and since under the State Board of Health Act it is the duty of the Department of Health to appoint agents to sell antitoxin to all physicians and others applying for and needing the same, and since all these subjects come within the meaning of "biologicals" and are in fact biologicals, it appears to me that you are without any authority to withhold issuing your biologicals to osteopaths and chiropractors.

Our Supreme Court has defined "physician" in the following language:

"A physician is one versed in or practicing the art of medicine, and the term is not limited to the disciples of any particular school." *People v. Siman*, 278 Ill. 236.

"The term 'medicine' is not limited to substances supposed to possess curative or remedial properties, but has also the meaning of the healing art—the science of preserving health and treating disease for the purpose of cure—whether such treatment involves the use of medical substances or not. In common acceptance, anyone whose occupation is the treatment of diseases for the purpose of curing them is a physician, and this is the sense in which the term is used in the Medical Practice Act."

While the statute makes it your duty to deliver these biologicals to chiropractors and osteopaths when they have applied for and shown that they need the same, yet the mere fact that such osteopaths and chiropractors are entitled to receive such biologicals does not in itself authorize them in any manner to use such biologicals in the treatment of human ailments.

Under section 9 of the Medical Practice Act,

found at section 9 of chapter 91, Smith-Hurd's Illinois Revised Statutes, 1929, one seeking to take an examination to become an osteopath or chiropractor is not required to take an examination in *materia medica* or therapeutics.

Materia medica is defined as follows:

"That branch of medical study which deals with drugs, their sources, preparation and uses." See *Dorland's Medical Dictionary*, 15th edition.

Therapeutics is defined by both Webster and Gould as:

"That branch of medical science which treats of the discovery and application of remedies for diseases."

The legislature of this State has not seen fit to require osteopaths and chiropractors to have any knowledge of *materia medica* or therapeutics, any any person taking an examination for and obtaining a license to practice osteopathy and chiropractics imposes upon himself the restrictions imposed by the statute.

Our Supreme Court, in the case of *People v. Wille*, 315 Ill., 282, at 287, says—

"The practitioner who possesses a restricted license voluntarily imposed upon himself the limitations under which he practices. If he wishes to practice medicine in all of its branches he is permitted by sections 12 and 12a (Cahill's Stat. 1923, p. 2215) to qualify himself for an unrestricted license precisely as others do."

And the same Court, in the case of *The People vs. Walder*, 317 Ill., 524, at 527, says—

"Any person who professes to practice any system of treating human ailments has to deal with those mysterious influences upon which health and life depend, and no person can claim the right to enter that profession who does not have a knowledge of the human body, its complicated parts and their relation to each other, and a knowledge of the effect upon the human body of substances which might cause sickness or destroy life."

A chiropractor or osteopath may have a thorough knowledge of *materia medica* and therapeutics so far as the statute or the license by the State department is concerned. So also, such physicians may have no knowledge of either of such branches of medical science and still be entitled to a license to treat human ailments without drugs. But since these two branches of medical science have to do with the effect of drugs as remedies, those physicians, not having the knowledge of such subject, required by the statute, would be presumed not to know how to apply such remedies. The presumption of law being that they do not know how to apply drugs as remedies, neither the osteopath nor the chiropractor has authority, under our statute or under

the license issued to either of them, to treat human ailments by the use of biologicals.

In answer to questions four and five I call your attention to section 26 of the Medical Practice Act, found at section 16-k of chapter 91, Smith Hurd's Illinois Revised Statutes, 1929, which provides—

"Any person who shall treat human ailments by the use of drugs, or medicines, or operative surgery and shall have only a license to treat human ailments without the use of drugs or medicines and without operative surgery, shall be guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than one hundred nor more than five hundred dollars, or by confinement in the county jail not more than one year or by both such fine and imprisonment in the discretion of the court."

I further call your attention to section 32 of the Medical Practice Act, found at section 16q of chapter 91, Smith-Hurd's Illinois Revised Statutes, 1929, which provides —

"Any person who shall hold himself out to treat human ailments by any system or method of treatment other than that for which he holds a valid, existing license under the laws of this State, shall be guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than one hundred dollars nor more than five hundred dollars, or by confinement in the county jail not more than one year, or by both such fine and imprisonment, in the discretion of the Court."

So, under the former section, if such osteopaths or chiropractors treat human ailments by the use of biologicals they violate the statute and under the latter section of the statute if they hold themselves out to treat human ailments by means of biologicals, they are likewise guilty.

Very truly yours,

(Signed) OSCAR E. CARLSTROM,
Attorney General.

DEROGATORY ARTICLES IN LAY JOURNALS PERTAINING TO MEDICAL SUBJECTS

Woman's Auxiliary
to the

Illinois State Medical Society
Mattoon, Ill., Jan. 26, 1931.

To the Editor:

In the February issue of the *Forum* appears an article purported to have been written by a woman who claims to be a graduate nurse. Her subject is "The Patient's Dilemma." Don't you

think this story should be answered? We know of no one better qualified than yourself to suggest something to do about it.

Mrs. T. O. Freeman and the Doctor.

Note and Comment:

We will answer the story in the *Forum* as we have answered the hundreds of others of a similar character that have appeared in national magazines and newspapers during the last year. The task is becoming quite burdensome.

Month after month the newsstands, library tables of homes all over the land and of institutions, are filled with periodicals containing cleverly written articles totally and absolutely at variance with medicine and its work. In some instances this misrepresentation from phrase writers has reached the stage of fiction, bearing poisoned and invidious attack upon the self sacrificing science in the sugar coated story that appeals to the imagination and impresses the mind. One such appeared within the year of one of the five cent magazines claiming one of the largest weekly circulations in the world. In *Liberty* was published a story garbling what can, does, or might happen in a supposedly well regulated institution. This same magazine also run repeated criticisms of the faith, works and results of the medical profession that would not stand up before a fair jury of well informed persons.

Nor is this magazine alone in this trespassing upon the rights of an ancient, honored and humanitarian profession.

Literary Digest; Ladies Home Journal; Good Housekeeping; Harper's Magazine, especially for November, 1930, and February, 1931; Delineator; Woman's Home Companion; The Forum; The Survey-Graphic; and scores of other outstanding periodicals all have published, especially within the past year, one or several articles that grossly misrepresent or falsely educate the public mind along questions where lay judgment is at once a peril and a menace.

WE HAVE NO WELL COORDINATED EFFORT IN DEALING WITH HUMAN PROBLEMS

Belleville, Ill., Jan. 20, 1931.

To the Editor: The enclosed newspaper article was written by one of our old family doctors and read before the last meeting of the St.

Clair County Medical Society (Belleville Branch).

Dr. G. G. Bock, former mayor of Smithton, is the author of the article. He writes for this paper from time to time and this particular article was in answer to the Child Welfare Conference in Washington.

G. C. OTRICH, M. D.

The following excerpts from Dr. Bock's newspaper article are worthy of reproduction. We quote:

The medical profession who are best qualified to cope with health and welfare problems, have not always let their light shine, but frequently kept it under a bushel from Hippocrates, Galen and the earlier Aesculapius, when the profession or practice of medicine was enshrouded in mysticism, which to this day still remains in the minds of the laity. While the medical profession was bending its energies in perfecting better methods in curing and coping with disease as it existed, other agencies, and especially members of various cults, societies, and organizations, were busy extracting large endowments from those free-lances of the commercial exploiters, who frequently are responsible or indirectly responsible for the crime, sickness, and other social disorders, which individuals and our body politic are suffering from today.

Legislatures and Congress are importuned to pass laws to enable the laity and various cults to solve the social and welfare problems according to the viewpoint of the various cults, societies and organizations. As a result, we have no well co-ordinated effort in dealing with human problems.

The medical profession is best qualified to cope with all problems pertaining to the health and the enlightenment of the laity or masses on all health questions. In our efforts to eradicate the ignorance, superstition and credulity that exists in regard to medicine, we have been slow to take the public into our confidence and explain health matters.

As a result of the profession's apathy, in regard to publicity of health matters, other organizations have succeeded in getting laws like the Sheppard-Towner bill and other medical legislature enacted, that should have received the sanction of the medical profession before such legislation became a law.

The medical profession should take the lead in regard to educating the people on all medical matters, and the dispelling of the many erroneous views held in regard to disease and the functions of the human body.

SCIENCE AND ART

The physician moves amid mystery. He practices an art based on many sciences. A man may know them all and be a less skilful healer than one who, knowing them less well, is master of the art to which they increasingly contribute.—*Dr. S. Weir Mitchell, in "Dr. North."*

PUBLIC HOSPITALS AND CONTROL OF LICENSED DOCTORS (A CORRECTION)

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC HEALTH
SPRINGFIELD

January 21, 1931.

To the Editor: In the January issue of the ILLINOIS MEDICAL JOURNAL, page 10, you have an article under the heading "*The Attorney General of Illinois Holds That Public Hospitals in Illinois Cannot Exclude Any Doctor Licensed by the State,*" and in the article you say, "According to the Associated Press Reports December 29, the drugless practitioners cannot be barred from hospitals."

As evidence that the report sent out by the Associated Press was incorrect and misleading I am enclosing a copy of the Attorney General's opinion.

ANDY HALL, M. D.

The following is the opinion:

(COPY)
STATE OF ILLINOIS
LAW DEPARTMENT
SPRINGFIELD

December 18, 1930.

FILE NO. 2973.

MEDICINE AND SURGERY.

Power of municipal hospital to fix standards of qualifications for those who practice in such hospital.

Andy Hall, M. D.,
Department of Public Health,
Springfield, Illinois.

Dear Sir:

I am in receipt of your letter of December 11th, in which you advise that the city of Decatur has recently constructed a hospital for contagious diseases, such as smallpox, diphtheria, measles, scarlet fever, meningitis, infantile paralysis and other communicable diseases.

You ask whether, under the laws of this State, the Board of Directors of that hospital have authority to fix a standard of qualifications for those who practice in such hospital.

In reply I direct your attention to section 11 of an Act entitled:

"An Act to revise the law in relation to establishing and maintaining public hospitals in cities of less than 100,000 inhabitants."

found at section 175 of chapter 23, Smith-Hurd's Illinois Revised Statutes, 1929, and which provides as follows:

"All physicians who are recognized as legal practitioners by the State Board of Health of Illinois shall have equal privileges in treating patients in said hospital."

Under the statute it becomes important to determine the meaning of "legal practitioner." Under section 11

of the Medical Practice Act, found at section 11 of chapter 91, Smith-Hurd's Illinois Revised Statutes, 1929, it is provided that the following kind of licenses shall be issued:

"1. To practice medicine in all of its branches, to applicants passing examinations therefor;

"2. To treat human ailments without the use of drugs or medicines and without operative surgery, to applicants passing examinations therefor. * * *

Our Appellate Court, in the case of *People v. Barnett*, 240 Ill. App. 357, at page 361, says:

"The General Assembly, in framing the Medical Practice Act, was confronted by the necessity of applying its provisions to the schools of medicine or medical practice now existing and to those which might arise from time to time. It was impossible to formulate a statute with particular reference to each. A plan of regulation was provided in a single, comprehensive enactment applicable alike to all schools, present and future. The plan divides licenses (Cahill's Stat. 1923, ch. 91, par. 11) so far as physicians are concerned, into two classes, one of which confers the right to practice medicine in all of its branches, and the other to treat human ailments without the use of drugs or medicines and without operative surgery, the licensee under such a license to be restricted by its terms to the practice of the system or method which he specifically designated in his application as the one he would undertake to practice."

"The Supreme Court has frequently held that the term 'practice of medicine' is not confined alone to those practitioners who may use drugs, etc. In *People v. Simon*, 278 Ill. 257, the court at page 257 says:

"The term 'medicine' is not limited to substances supposed to possess curative or remedial properties, but has also the meaning of the healing art,—the science of preserving health and treating disease for the purpose of cure,—whether such treatment involves the use of medical substances or not. In common acceptance, anyone whose occupation is the treatment of diseases for the purpose of curing them is a physician, and this is the sense in which the term is used in the Medical Practice Act."

In view of the provisions of the above statute and the language used by Judge Boggs of the Appellate Court in the fourth district, I am of the opinion that "legal practitioners" includes all persons who have been licensed to practice medicine, either in all its branches or to treat human ailments without the use of drugs or medicine and without operative surgery. "The Board of Directors of such hospital would have no authority, under the statute, to pass any rules or regulations preventing all legal practitioners from having equal privileges and treating patients in such hospital."

The term "physician" includes all persons whose occupation is the treatment of diseases for the purpose of curing them, whether it be with drugs or without

drugs. See *People v. Barnett*, supra. And, the section of the hospital act to which I first call your attention provides that all such physicians who are recognized as legal practitioners by the State Board of Health shall have equal privileges in treating patients in said hospital.

The medical practice act provides for an examination to be passed by those desiring to practice medicine and the person successfully passing such examination and receiving a license as such cannot be subjected to further examinations or qualifications by any hospital board.

The Department of Registration and Education has the power and authority to determine and fix a standard of qualifications for those practicing medicine and such power is not delegated to public hospitals.

I am returning to you herewith the correspondence submitted by you with your letter.

(Signed) OSCAR E. CARLSTROM,
Attorney General.

FIRST BATHTUB INSTALLED IN AMERICA IN 1842

Although the ancient Romans and Greeks were well aware of the value of bathing not only for cleanliness, but for health as well, it is a peculiar fact that following the fall of the Roman empire down until 1842 bathtubs and regular bathing were shrouded in a whole galaxy of bugaboos, and it was a brave, nay, foolhardy, person who "flew in the face of providence" and took a bath!

In 1842 Adam Thompson installed the first bathtub in America. It was made of mahogany, lined with lead, and weighed a ton. An what a storm arose! Physicians condemned it as dangerous to health. Preachers stormed against it from the pulpit, claiming that bathing would tend to make mankind extravagant and that they would lose their morality.

The legislators, swayed by public opinion, joined in the war and placed an exorbitant tax on bathtubs as their bit in putting down the practice.

But nothing happened to Thompson and the custom spread rapidly until by 1860 every really first-class hotel had its two or three public baths. Since that time there has been a rapid development in the manufacture of bathtubs and bathing facilities, until today the range of styles in bathtubs has reached an almost unlimited choice of styles.

With this development in bathtub construction has come that of shower bath development. Recognized as a most healthful, as well as most enjoyable, method of cleansing the body, the development of the shower bath has been retarded by the problem of leakage and the high cost of installation.

TOWARD HAPPINESS

Whenever you feel less happy than usual, eat less, sleep longer, exercise more, and find out whether something is worrying you. If this doesn't help, see a doctor.—Walter B. Pitkin.

Original Articles

SOME DEVELOPMENTS WHICH HAVE AFFECTED PROGRESS IN PEDIATRICS*

GEORGE EDWIN BAXTER, M. D.

CHICAGO

It is important for the General Practitioner to be pediatric minded. This sentence is paraphrased from the title of an address delivered by Dr. William A. Pusey before the Institute of Medicine, entitled "The importance of being historically minded." The choice of the subject for this paper was made because experience has taught that the average general practitioner has not, at least enthusiastically, interested himself in advancing his knowledge of the progress which has been made, in the care and treatment of children. There is too much disposition to be content with obsolete methods or to be guided in feeding by the clever detail man of one or many baby food manufacturers. It is important for the general practitioner to familiarize himself with the fundamentals in the care of infants and children; once these fundamentals are acquired he will learn to be pediatric-minded.

The management of infants in sickness or health calls for special study and perfection of skill, the same as is demanded of any of the other departments of medicine. The attitude of some physicians was well expressed to me some years ago by a general practitioner, with a very considerable surgical ability, when he said: "The care of babies and children requires no special skill, because if you let them alone, they all get well." Such a statement can well be challenged because it is obviously untrue. Even though we can not actually cure many diseases, we can greatly help the infant or child that is sick or well.

There is scarcely a department of medicine which does not in some manner, either directly or indirectly, concern itself with the management of children. Pediatrics may be defined as the general practice among infants and children, with an age limit. The physician who practices among children finds it necessary to familiarize himself with all sorts and conditions as manifested in health and disease, particularly as those

conditions are altered or varied during childhood. He is indeed a general practitioner among children.

Certain factors enter into child life which must always be considered. Growth is a constant factor. It is impossible to evaluate disease or health in children without a proper understanding of growth and its varied effects. Certain infectious and contagious diseases are found to be more prevalent during childhood. These diseases have a decided temporary, if not permanent, effect upon growth.

Vitamins. The discovery of vitamins has clarified to some extent, our knowledge of the value of foods. It was found that isolated food factors, such as protein, carbohydrates, fats and minerals, when fed to experimental animals failed to cause growth until milk in small quantities was given. It was thus shown that there is something to be found in milk which is necessary for growth and is not present in the synthetic food which is made of fats, protetin and carbohydrates in amounts sufficient to produce the energy requirements of the organism. No one has isolated any of the vitamins. Of course the public has pounced upon vitamins and demanded that all diets shall be expressed in terms of vitamins. Food or chemical manufacturers have been quick to commercialize this substance. New vitamins are being discovered. The interesting fact remains, that all animals have been choosing and eating vitamins since the beginning of animal life and practically the choice has been made by self selection.

The knowledge of vitamins and their importance in the growth of animals has stimulated greater care in the selection of diet for those infants and children unable to make their own choice. Some very interesting and instructive experiments have been made along the line of self-selection of foods by young infants. The experiments, still incomplete, at least give us courage for more liberal choice of foods for feeding infants. The experiments are not based upon scientific selection of foods but upon the natural selection by the infant based upon his needs as interpreted by himself. The known vitamins are:

Fat soluble A, found in milk and fats necessary for growth; its absence may produce xerophthalmia.

Water soluble B, found in covering of cereal

*Read before Vermilion County Medical Society, March 4, 1930.

grains; anti neuritic, prevents beriberi or polyneuritis.

Vitamin C. Antiscorbutic found in citrus fruit juices, tomato juice and potato.

Vitamin D. Antirachitic found in cod liver oil.

Vitamin E. Is the reproductive and does not concern us now.

Convulsions. The pronounced instability of the nervous system requires attention and consideration. This instability is evidenced in both disease and in health. The modern child is the object lesson of many theories and varied practices to control his nervous reactions; to develop his mentality and to co-ordinate his adjustments to his environment. Convulsions are a common occurrence in infants; the treatment is urgent and immediate. The cause of the convulsion requires careful examination and study of the patient. The unstable nervous system is present to a greater or less degree in all infants, but the precipitating cause of the convulsion is by no means always the same. The difference in susceptibility of infants is explained usually by the presence of a spasmophilic diathesis, resulting from a deficiency of calcium and phosphorous. Constipation if present, is an incident, not a cause. The intestinal tract has practically no causative relation to convulsions. The custom of administering cathartics and enematas during a seizure has its greatest usefulness in the psychological effect it produces upon the family rather than the relief it gives to the infant.

Child Management. There has been an abundance of literature and propaganda circulated, calculated to aid the mother in child management. Much of it is good, some of it is vicious, and some misleading and confusing. It is the duty of the general practitioner and pediatrician to lead and guide the parents in the proper child management. Parents are eager for instruction and guidance and would welcome that from their doctor. The physician must learn how to properly direct parents. Child hygiene and management is a problem that is constantly with parents. They will seek advice where they can get the best. It is the function of the doctor to give it. He can not be content in giving adverse criticism of public propaganda, but he must qualify himself to give constructive advice. He is, or should be, the natural counselor and adviser and if he fails

in this function he is missing a real opportunity to serve his patients.

Artificial Feeding. The most important and the most exclusive pediatric factor is the artificial feeding of infants. Breast feeding requires study and teaching from the standpoint of its technic. It should not be necessary to teach its importance and desirability. The artificial feeding of babies is strictly a special department of medicine. It calls for special knowledge and special training. Just because some babies thrive on any kind of food given to them, whether from a can or spoon, is by no means proof that they will all thrive in that manner. A high percentage even of breast babies require supervision of their nutrition and growth. The feeding of artificial foods to babies should always be done under the careful supervision of the physician.

The progress in our knowledge of infant feeding during the past 25 years has been great and almost romantic. About the time that pediatrics made claim for recognition as a specialty of medicine, there arose (as a result of our teaching unfortunately) a popular desire on the part of mothers to feed their babies the bottle and thus avoid the confinement and discomforts incident to breast feeding. This desire arose as a result of the teaching by physicians that babies could be fed as well artificially as naturally. Milk modification by the percentage method created a false security in the minds of physicians and later in the minds of the mothers: that cow's milk so modified was the same as human milk. This reasoning was based upon the fallacy that by modifying cow's milk so that the percentage of fat, protein and carbohydrate would equal that of human milk, the infant would then be getting the same quality of food as breast milk. The search for scientific knowledge of foods and the intensive study of infants developed the idea that infants could be fed scientifically; that human milk was not necessary and indeed not always desirable. Gradually, the *art* of feeding infants either by breast or bottle, was lost. Finding this lost art, a return to common sense and a recognition of the limitation of scientific methods in artificial feeding, have been outstanding developments in the progress of pediatrics.

Great stress was laid upon the necessity of making identical, the percentage of fat, protein and carbohydrate in the cow's milk formula with that of human milk. Little thought was given

to the character of the other ingredients of milk, such as the minerals. Later studies showed that cow's milk is richer in casein than is human milk; also, that the soluble protein in human milk is found in greater quantities and is more easily digested. Cow's milk formulas made up according to percentages were by no means satisfactory in infant feeding. Difficulties arose and efforts were put forth to find out why the babies could not be fed on a formula containing identical percentages of fats, protein and carbohydrates as are found in human milk.

All curdled undigested stools were interpreted as due to casein indigestion. This interpretation led to the use of the whey cream mixtures. Cow's milk was treated with a coagulator such as rennet; the coagulated casein was strained out and only the whey, which contained all soluble proteins, lactose and minerals, was used. Cream in definite percentage was added; lactose was added, thus giving a mixture containing the soluble protein with fats and carbohydrates in percentages identical with human milk. Casein, the supposed great offender in the infant's digestion of cow's milk, was eliminated. The result should have been a perfect imitation of human milk. The theory and results failed to reckon with two important factors. First, that the newly modified milk was still cow's milk, devoid of certain undetermined qualities, which are present in the milk of a species, and which make that milk especially adapted for the growth of the young of that particular species. The second fact was, the infant. Some thrived on whey cream mixtures, as some will thrive on almost any kind of food in spite of its qualities or means of preparation. Many, however, did not thrive and the juggling of the percentages did not make any difference.

When it was quite satisfactorily proven that the cream of cow's milk was poorly tolerated in many infants, then studies were directed to determine the cause. It was found that there is a distinct physical difference in the fats of human and cow's milk. Cow's milk fat globules are much larger and more difficult to break up and emulsify. Human milk fat globules are much smaller and emulsify more easily and consequently digest more readily. Some enthusiastic and ambitious investigators tried to make a synthetic milk. This was done in the main by selecting vegetable and animal fats which could be

homogenized and produce a fat more nearly resembling human milk fat in its physical composition. Attempts were then made to have the mineral salt composition in the artificial formulas the same as that found in human milk. The object of the attempts of these investigators was to produce a human milk from the laboratory. Few of these synthetic milks stood the clinical test. All synthetic milks, no matter how carefully and chemically prepared, have the weakness that they are not human milks. Some have merit. It is difficult for the manufacturer of any kind of baby food to recognize the limitations of his product in the feeding of babies. Oliver Wendell Holmes, almost a century ago, defined the limitations of synthetic milks when he said: "A pair of substantial mammary glands have the advantage over the two hemispheres of the most learned professor's brain in the art of concocting a nutritious fluid for infants."

Another step in the progress of infant feeding was developed by Finkelstein & Meyer of Berlin. They were studying the group of infants afflicted with a diarrheal condition similar to that described in our text-books as cholera infantum and which they described under the named of acute alimentary intoxication. They worked upon the theory that the whey of cow's milk was toxic to certain infants. They believed the sugar or lactose found in the whey was not well tolerated. For many years buttermilk, which was fat free, had been fed to sick infants, especially infants with diarrhea and had been remarkably well tolerated. Also it had been shown by observers and clinicians that fat free sweet milk was much more easily digested than milk with cream on it. Having the background of the many different methods of making cow's milk formulas, none of which were entirely successful; also the knowledge that casein as fed in buttermilk and fat free milk was well tolerated by both sick and well infants; they were able to demonstrate the practicability of their theory that the whey of cow's milk was not only not well tolerated by infants with diarrhea, but actually made them worse. Therefore, they added the coagulator to cow's milk and strained off the whey; but they threw away the whey and retained the casein curd—this same curd which had previously been discarded because it was believed to be the chief offender in producing digestive disturbances. The casein curd was saved and re-dissolved in water

and buttermilk. The result is the protein milk which has stood the clinical tests and has such a wide field of usefulness in infant feeding.

Many a rough road has been traveled in ignorance by the path finder and pioneer. At his journey's end he is oftentimes surprised to find that there was a much shorter and easier route, had he but known. So in medicine, some of our most valuable discoveries have been made after years of study and research, and in the end to find a comparatively simple result which might have been attained by a much shorter and less laborious route, had the necessary knowledge been at hand.

The history of infant feeding certainly illustrates this fact. Through many years, at least over a quarter of a century, there was a great deal of research and clinical observation; heated discussions in medical meetings. Staunch supporters of this or that method of infant feeding, opposition to what seemed like established facts developed, with resulting new methods, until finally a complete revolution against all methods and the acceptance of a method, practiced as early as about 1750, when Von Rosenstein used simple dilutions of cow's milk in infant feeding. He advised cow's or goat's milk diluted with water and with the addition of sugar. He used barley water and oatmeal water and suggested the use of whole undiluted cow's milk at six months of age. This is practically the basis of the present day method of feeding infants.

THE ADAPTATION OF FOOD TO THE INFANT

This is an underlying principle in feeding all babies. All methods fail with some babies. All foods fail with some babies. That is why you can not successfully feed all babies Mellin's food, or S. M. A., or Dextrin-Maltose, or protein milk or any other food. The difficulty has always been to find a food or combinations of food with milk which would produce satisfactory results with all infants. The most methods or foods are based upon the fallacy that all infants react the same to methods of feeding, or have the same tolerance for certain foods. The attempt has been made to standardize babies as well as foods. To adapt all babies to foods or methods instead of adapting a food suitable for the particular infant.

Success in feeding babies whether from breast or more especially from bottle food is attained only by individualization. This fact makes it

difficult to teach or practice a single method of feeding. Practice and experience have taught the use of numerous methods and foods, none of which are adaptable to all babies. The result is, that each individual infant must be studied and a food adopted for his needs and tolerance. The physician must acquaint himself with all available foodstuffs, their values and digestibility. He must learn the various reactions which infants may have toward foodstuffs, the high and low points of tolerance as evidenced by gains in weight, appetite, vomiting, character and frequency of stools. Clinical experience as related earlier in this paper has shown the fallacies of improper interpretations and errors in reading the results of food disturbances. It has been shown that originally it was believed that casein in milk was always the factor to produce indigestion. Now we know that casein is not only easily digested but is a therapeutic agent in some conditions. Cow's milk fat was supposed to be easily digested by even new-borns, now it is known that the curds formerly thought to be protein curds are fat curds.

Milk sugar was believed to be the only sugar to use in a bottle formula, because that is the kind of sugar found in both breast and cow's milk. Large clinical experience and experimental evidence have shown that cane sugar and preparations with part malt sugar are just as well tolerated in most cases and in some instances much more easily digested.

Various cereal gruels when added to milk formulas have been found to act in two ways: first, by preventing the formation of such large curds in the stomach; and second, by adding a definite food value to the formula. Here again, the individual tolerance is to be considered. Some infants tolerate best, wheat, some oats, some barley, some rye, etc. This fact can only be determined by carefully noting the infant's reactions when any particular cereal is given. It is true that many babies have a good tolerance for one or many cereals but too often the physician does not keep close enough observation to know if the particular infant in hand is indeed thriving properly.

In infant feeding one must also consider the seasons of the year. Tolerance for food in a single infant may vary with the season. Summer produces certain disturbances not to be found in the winter and again in the winter months

one finds conditions which frequently interfere materially with the infant's nutritional development. Feeding the well baby does not call for the factors to contend with that are found in feeding a sick infant.

SICK INFANTS

Progress in pediatrics has shown some very remarkable fallacies formerly practiced and still being practiced in the feeding and care of sick infants. Twenty-five years ago the practical teaching of pediatrics in medical schools was to give all sick infants 1/10 grain of calomel every one-fourth, one-half or one hour for 10 doses and follow with a dose of castor oil. Pediatrics was in its infancy and little else was known by the teachers. It was believed then and by some even now, that the intestinal tract was responsible for most of the infant's illnesses and had to be treated in all illnesses. Development in our knowledge of the sick infant has almost completely revolutionized his care as has been the change in our knowledge and practice of infant feeding.

It is now known that the intestinal tract is seldom the actual cause of illnesses. It is commonly affected secondarily and rarely requires any direct treatment in the form of catharsis.

Respiratory Tract Infections. There is no one condition as frequently observed in infancy which is a cause of sickness as the acute infections of the respiratory tract. The respiratory tract includes the nose, ear, the accessory sinuses and cavities, the pharynx including tonsils; the larynx, trachea, upper bronchi and finally the smaller bronchi and lung tissues.

It would be only a most careless observer who would fail to recognize infections of the lower respiratory tract such as pneumonia or various types of bronchitis. The diagnosis of the localization of infections in the upper respiratory tract is more often overlooked, because of the failure of the physician to examine the infant. The common cold is responsible for a very high percentage of infant illnesses. This may be nasal, post nasal, ear, pharynx, larynx, or cervical adenitis with any or many complications. Many of these conditions escape recognition only because the physician's sin is one of omission instead of commission. He fails to examine, and unless he knows that these conditions frequently exist, he may fail to recognize them even though

he examine. Throat infections are extremely common in infants. The physical evidence may be slight, such as a redness of the uvula, or a redness and slight swelling which resembles small papules to be found at the junction of the base of the uvula with the anterior pillars of the pharynx. These swellings may be single or multiple; they may be quite red or only faintly red. The area of redness may be limited to the swollen portion or may extend to varying degrees, sometimes even involving the whole soft palate and anterior pillars.

Throat infections make the infant sick. He has fever, usually vomits, has loss of appetite. The course, uncomplicated, is usually two or three days and sometimes is followed by a measles-like eruption, variously described as toxic erythema or erythema subitum. The eruption never appears until after the temperature is normal and is frequently erroneously diagnosed as measles.

These respiratory tract infections, especially the throat infection just described, account for the most of the infant's disturbances that were formerly attributed to teething. Eruption of teeth is a normal physiological process and seldom causes anything more than minor discomforts, restlessness, slight anorexia and fretfulness. When fever is present in an infant, the cause is found to be elsewhere than in the gums if a careful and thorough search is made. It is poor practice to ever accept the diagnosis of teething as the cause of an infant's illness unless a careful examination has failed to reveal any other explanation.

Respiratory tract infections are not new in infant life—it is not a modern disease. It is only that our knowledge of its relationship to infant welfare, is new. Many illnesses formerly attributed to intestinal derangements, functional or infectious, are now known to be the result of infections outside of the intestinal tract, so-called par-enteral infections. These facts should direct our line of treatment for the condition which exists and not blindly attack the intestinal tract.

Constipation and Cathartics. Cathartics have been used too freely in treating the sick infant. Giving a cathartic to the sick infant has and still constitutes the first and main attack directed by many physicians. This method of treatment was based upon the theory that the intestinal tract was the source or cause of the illness. It is the erroneous belief of many physicians that

a diagnosis of intestinal disturbance is justified in all sick infants.

Constipation has been, and still is, believed by many people and even by many doctors, a serious condition. There are many who think that the life of an individual is threatened if an evacuation from the bowels is not produced during each 24 hours. There are others who believe that serious impairment of health will result if the daily defecation does not occur. There are still others who can name scores of symptoms, discomforts and disturbances which they believe are the result of constipation. The bowel of the poor infant has been the main and only organ about which information has been sought in the history and the sole point of attack in treatment. With no examination, or only a superficial investigation, the physician calls for a stool, makes minute search for small strings of mucous, which if found is pointed to with a finality, that *that* explains the entire sickness. If perchance a cathartic, especially castor oil, has been given, then the green mucous stool tells the story, when the look of contentment is read on the doctor's face, that the diagnosis of "intestinal infection" is too clear to even discuss. This is a wrong interpretation of a normal condition.

Constipation is a normal condition in all bottle fed babies and not a sickness. Fever does not result from uncomplicated constipation. Convulsions do not result from constipation. Infants thrive, gain in weight and are comfortable except during the act of defecation when considerable discomfort or even pain is experienced in the stretching of the anal mucous membrane as the hard stool is being passed; sometimes even streaked with red blood. Constipation is best controlled by teaching the anxious family that nothing serious ever develops from constipation. Otherwise the treatment is practically dietetic, not by cathartics or purges.

In almost all febrile conditions in infancy, digestion is inhibited to a greater or less degree. The indigestion usually produces an attack of vomiting. The stomach is thus emptied early and thereby prevents the undigested food from reaching the intestinal tract. Occasionally a mild laxative is indicated or an enema, but seldom a drastic purge.

Dehydration. Another important development in the progress of pediatrics was the recognition

of dehydration in infants. Water loss is serious to the infant. Water balance must be maintained. Not a few infants in sickness have developed a water unbalance because of drastic and repeated purges and decreased intake. A severe degree of dehydration is always serious and one which calls for immediate relief if the infant's life is to be saved. The picture of an infant starving for water should be familiar to all, and when that condition is known and recognized then it can be treated; or, it may be prevented. Diagnoses of pneumonia, intestinal intoxication or infection, meningitis, etc., have been made in infants who have no pathology but whose tissues are dried out. He has become so toxic that he is almost unconscious, unable to show any reaction to light, or touch; tongue is dry, throat dry, eyes sunken, tissue turgor lost. Even if there is an underlying pathological condition, the indication for treatment is evident. Give water in quantity sufficient for the infant's need. There is no single remedy as generally important in the care of sick infants as the free and intelligent use of water. The intelligent use consists in the physician giving clear and specific directions as to the quantity of water to be given, the method of giving, the frequency, and the insistence that the mother or nurse should pay no attention to the infant's protest against taking it. Prevention of dehydration in a sick infant materially aids that infant in his fight against the infection and oftentimes will prevent a wrong diagnosis.

When the physician recognizes the necessity of any line of treatment, he will have very little trouble in convincing a mother of that necessity. A mother will usually carry out any instruction provided she is shown that such a procedure will either save her baby's life or will prevent the development of some serious condition.

PHYSICAL EXAMINATION

Physicians who have attended medical schools during the past ten or twenty years have been taught the necessity of thorough examination of the patient in order to make a diagnosis. The tremendous developments in the progress of laboratory technic and findings, have given some wonderful facts to help in our diagnosis. So popular has become the demand by physicians and patient for all these tests, that the recent graduates and even many of the older graduates

have grown to lean upon the laboratory in all its departments to furnish the diagnosis. They have lost sight of and overlooked the greatest aid of all, namely: the physical examination of the patient. A thorough knowledge and acquaintance with the patient's physical condition as revealed to the eye, the hand and the ear can never be entirely replaced by any or all of the finest laboratory technic. This statement is made, not with the idea of deprecating the value of laboratory findings as an aid in a diagnosis, but with the idea of stressing the importance of learning all that can be found out about the patient by intelligent use of our senses and then supplementing this knowledge by the laboratory findings, if necessary. It has been truthfully said that medicine is not and never can be an exact science. The reason seems obvious. The human body is not a perfect mathematical machine. There is too much individual variation; too much influence exerted by the mind and emotions in the make-up of bodily functions, influences which are not as yet capable of scientific measurement or control.

Make a thorough physical examination first and one is often surprised how much he can learn about his patient. The examination can be conducted with the infant or child without the fear of immodesty. Physicians should get the habit of having the babies stripped for each examination. Inspection is one of the most important of the physical methods of examination, other methods are supplementary. It is inconceivable that a blind physician would attempt the practice of medicine among babies and children.

In conclusion, the following should be emphasized in pediatric practice.

1. The infant or child is not a small adult.
2. Growth is a necessary part of child life and must be reckoned with in the management of the sick or well child.
3. Infant feeding is strictly a pediatric problem, demanding a most complete knowledge of all factors and available foods necessary to produce growth and health; also demanding study of the individual infant in order to adapt to him a food suitable for his needs.
4. The recognition of the various localization of infections which are so frequent in infant and child life. A careful study of the influence the infections have upon, not only the health but the growth of the child.

5. The proper evaluation of teething in infant life; especially to recognize the limitations of teething in its influence upon the health of the infant.

6. A clear understanding of the clinical knowledge of the functions of the infant or child's intestinal tract, and the alteration of these functions in disease so that the cause of infant sickness shall be placed where it belongs and not blindly ascribed to the intestinal tract.

7. If the physician would know his infant patient, a thorough physical examination must be made in order to learn truly what the trouble is and then to intelligently proceed to the management of the patient.

COMMON MISTAKES IN THE DIAGNOSIS AND TREATMENT OF GOITER*

ARNOLD S. JACKSON, M. D.,
Jackson Clinic
MADISON, WISCONSIN

Why is it that frank cases of hyperthyroidism are so often treated for heart disease even by competent physicians? How many cases of neurasthenia are subjected to surgery every year in this country because of a failure to appreciate a true disturbance of the thyroid gland? In what percentage of cases of exophthalmic goiter submitted to surgery is the risk of operation tremendously increased because of the failure of a prolonged medical regime?

In attempting to analyze some of the records of patients passing through our thyroid clinic in recent years, these are a few of the problems that I thought might be of interest to you. It is not my intention in this discussion to outline the cardinal points in differentiating the various types of goiter or to elucidate on a classification. The literature contains ample records of these subjects and merely to clarify this paper, goiter has been divided into the non-toxic and the toxic varieties. Colloid and non-toxic adenomatous goiter are placed in the former; exophthalmic and toxic adenoma in the latter.

If there is any panacea for goiter I have not been able to find it after ten years' intensive study of the subject; neither has any one else in the world so far as I am able to ascertain. I have reports and records of goiter in Norway,

*Read before the meeting of the Fulton County Medical Society, Canton, Illinois, October 22, 1930.

Switzerland and China, in the African negro, in the Hindus of India and the Indians of America. An adenomatous goiter is an adenoma whether in Africa, Europe, Canton, China, or Canton, Illinois. The same is true of an exophthalmic goiter, as the incidence of hyperthyroidism varies in different localities particularly with regard to adenomatous goiter. But the point I wish to make is, if Colonel McCarrison discovers a cure for goiter in India, it will not be long before you and I will hear about it, and be able to cure our goiter cases with the same remedy. By conservative estimate I should say there are at least 200 "sure cures" for goiter in this country ranging from harmless strings of magnetic beads to dangerous solutions of iodine, and it should be one of the prime objectives of all physicians interested in goiter to enlighten the laity with regard to the absurdity as well as the danger of these patent remedies. It might be well to add that there are still a few members of the medical profession who feel that they possess some cure for goiter unknown to their less fortunate colleagues.

Suppose a young woman, aged twenty, comes to your office because she has been told that a goiter is the cause of her nervousness and pounding heart: is an exophthalmic goiter the first thought to enter your mind? If so, it is your problem to rule out this possibility. You can at once disregard a toxic adenoma because such a condition is almost unheard of at this age. The patient states that she is easily upset, tends to cry without much cause, feels that her neck is tight, that at times it seems to choke and pain her. She cannot sleep, has a poor appetite, her heart pounds especially after meals, she has frequent headaches, is constipated, tired all the time, and unable to gain weight. On examination, slight tremor of the hands is noted, a symmetrical enlargement of the thyroid gland, prominent eyes, a pulse rate of 90, systolic blood pressure of 120 and diastolic of 84. She may even volunteer the information that because of a basal metabolic rate of 25 per cent. she has recently been advised to have a thyroidectomy. Has she or has she not an exophthalmic goiter? You are likely to say at once she has not. Be careful not to say this every time as you may be mistaken. Occasionally such an innocent looking individual has been taking iodine for several weeks, a fact she may neglect to mention or you

to ask. I have seen such cases in which even the metabolic rate was temporarily within normal limits and in which incipient hyperthyroidism was almost overlooked.

If, however, this young woman has not taken iodine she probably has a mild case of neurasthenia (or whatever you wish to call it) and not exophthalmic goiter. Patients with exophthalmic goiter seldom complain of tightness or choking or pain in the neck, almost all other nervous women do. In fact, after some busy days I wonder if all women do not suffer this symptom under a nervous strain. In no other condition except diabetes mellitus do patients have a good appetite and yet lose weight, and the true case of Basedow's disease is unique in the extent of weight loss in spite of a ravenous appetite. Not all of the latter, of course, are excessively hungry and this symptom even changes to anorexia and nausea as a crisis approaches, but it is unusual to see a neurasthenic person with a ravenous appetite and still losing weight. The latter complains more of her heart palpitating, especially after meals. There is a true pounding of the heart in exophthalmic goiter so that even the bed may transmit the sound from wife to husband. Headache and constipation are rather frequent complaints of the neurotic person and are seldom mentioned by patients with hyperthyroidism. On the contrary, there is a tendency toward diarrhea in the latter which, in the days before Lugol's solution came into use, often proved a serious complication.

There may be no visible difference in the appearance of the neck in a mildly nervous girl with a colloid goiter and one who has a truly hyperthyroid condition. The neck of the patient with hyperthyroidism, however, usually appears to throb and pulsate and in about 50 per cent of the early cases will transmit a thrill to the palpating fingers. Likewise, a bruit may be heard. In exophthalmic goiter a stare may be present that is never seen in the neurotic girl, although the latter may have large prominent eyes. It should be remembered that true exophthalmos is absent in one-half the cases of exophthalmic goiter within the first three months of onset. The pulse rate may be misleading, but as a rule is higher in toxic goiter. The blood pressure readings are of considerable importance. If the systolic pressure is normal or slightly elevated but the diastolic pressure is considerably below

normal, the possibility of a toxic goiter must be strongly considered. Aortic insufficiency is the only other condition in which the diastolic pressure may appear as proportionately low. The pulse pressure is a valuable index of the severity



Fig. 1. The diagnoses in cases of this type are often overlooked because of the absence of any visible thyroid enlargement or exophthalmos.

of the hyperthyroidism and closely parallels the basal metabolic rate. In a typical early case of exophthalmic goiter in a young woman of this age, the systolic blood pressure would be 124 and the diastolic 68 in contrast to a systolic blood pressure of 120 and a diastolic of 80 in a normal person. As the disease progresses the systolic pressure increases so that a marked hypertension often occurs in patients approaching a crisis.

The basal metabolic rate has been the means of sending more than one person to his grave. When accurately determined, on a reliable machine and properly interpreted together with the clinical findings, the metabolic rate is of great value. This important laboratory aid has frequently been condemned by competent honest physicians because the preceding qualifications for an accurate test had not been fulfilled. Either the machine was inaccurate and the test did not check with the clinical findings, or the technician made an error, or the clinician allowed his own better judgment to be overruled by the test. Even reliable technicians and machines may err.

Recently I operated upon a man for a well de-

veloped case of exophthalmic goiter. A few weeks before this patient entered our clinic with apparent symptoms of incipient hyperthyroidism. The examining physician sent the patient for a metabolism test and was greatly surprised when a normal rate of +6 per cent was reported. He called me in consultation and I was likewise surprised and misled by the test. We decided to try the patient on a therapeutic iodine test for a week. This resulted in a fair degree of improvement, so the iodine was withdrawn and the patient observed for two weeks. His symptoms then became pronounced, he lost six pounds in weight, developed a typical stare and a 20 point increase in the pulse pressure; we were then convinced that he had a true hyperthyroidism. The patient was sent for another metabolism test and this time the report came back +42 per cent. It is possible, of course, that we were dealing with a very early case, but I shall always feel that there was an error in the metabolic report. For years I have been checking very carefully to prove such a mistake on the part of our technicians or metabolic machine, but the final analysis has in



Fig. 2. The same patient three months after thyroidectomy; he gained 38 pounds.

almost every instance shown the error to be on my part.

To return to the case under discussion, I should certainly hesitate to advise a thyroidectomy to relieve hyperthyroidism in any young woman in whom the metabolic rate was +25 per

cent or less, even if all the preceding tests for accuracy were fulfilled. If a second test showed no lower, a careful check should be kept on the patient, and a therapeutic iodine test tried. As a rule, however, a second or third test, unless true



Fig. 3. Pseudo-exophthalmic goiter. Prominent eyes, thyroid enlargement, tremor and rapid heart. Basal metabolic rate $+25$. Blood pressure normal, no weight loss. Colloid goiter in a nervous girl.

hyperthyroidism is present, will often approach normal as the patient overcomes his nervousness and becomes accustomed to the machine. If a normal person merely breathes rapidly enough he can send a rate up to two or even three times normal. Face masks that pinch the nostrils often record inaccurate reports because of the patient's inability to breathe easily. During the past few years I have observed many persons who had been advised to have a thyroidectomy because of an increase in the metabolic rate, but in whom I could find no clinical evidence of hyperthyroidism. Usually their metabolism was found to be normal following one or more tests.

Why is it that frank cases of hyperthyroidism are often treated for heart disease, even by competent physicians? Because heart disease is usually expected in persons past middle life and at this age hyperthyroidism often develops in an insidious manner. The extreme emotionalism and nervous instability often seen in younger persons is absent. Frequently no enlargement of the thyroid gland is visible or palpable particularly if the goiter is substernal. Recently I

saw a case of this type. The patient had been bed-ridden for eighteen months during which time there had been a loss of more than 100 pounds. There was no exophthalmos, but on swallowing it was possible to grasp momentarily the upper right lobe as it ascended from the thoracic cavity. Figure 1 illustrates such a case of this type, this patient had been under observation for three months by competent physicians who failed to consider the possibility of an exophthalmic goiter, because of the apparent absence of any enlargement of the thyroid and of exophthalmos. If the blood pressure readings



Fig. 4. This patient does not appear toxic, but was admitted in a crisis of exophthalmic goiter. Basal metabolic rate $+66$, high pulse pressure, rapid weight loss.

had been carefully studied or if the fact that the patient had lost 40 pounds in weight in spite of a good appetite had been given consideration, the diagnosis would probably not have been overlooked.

Because a goiter has been present twenty or thirty years in a patient without causing trouble, auricular fibrillation, chronic myocarditis and edema of the legs is too frequently attributed to primary cardiac disease. The fact is lost sight of that an adenomatous goiter is present on an average of twenty years before hyperthyroidism develops. Then the onset of symptoms is so gradual and insidious as to fail to direct attention to the proper source. Hypertension, itself a

sequella of toxic adenoma, is looked upon as the essential type and a meat free or salt free or some other equally ineffectual treatment prescribed. Moreover, when auricular fibrillation and hypertension have developed, it is difficult to repair the



Fig. 5. Case of "iodine fast" exophthalmic goiter. She had been on iodine two years. Severe reaction after stage operations. Basal metabolic rate $+77$.

damage sustained by the cardiovascular system. While normal rhythm is usually restored following thyroidectomy in long standing cases of toxic adenoma, cardiac irregularity may persist in spite of operation, digitalis and quinidine; however, brilliant therapeutic results are frequently observed with quinidine. For example, in a patient who had an irregular heart action for ten years following a crisis of exophthalmic goiter, but in whom the rate returned to normal and has remained such, within twenty-four hours after receiving quinidine.

Finally, the promiscuous use of iodine has served to increase the mortality rate in the operative treatment of exophthalmic goiter in this country in recent years more than any other one factor. Some of the patients I see have been kept on iodine six, twelve and even as long as twenty-four months. With what results? At first there is a decided improvement in the patient's condition—he no longer loses weight, but instead gains rapidly, the heart quiets down, he is able to sleep again, his mental equilibrium is restored and in every way he appears benefited.

So much so that he frequently plunges into his work with new enthusiasm or again takes up his duties with zest. The relatives are pleased, his physician is looked upon as a hero and hailed as a miracle man. The basal metabolic rate is perhaps restored to normal, and the surgeon who advised thyroidectomy is looked upon as a radical operator with incompetent judgment.

Contrast this picture with that of the same patient three to six months later. Following a transitory improvement of a few weeks the patient returns to his physician complaining that his heart is again pounding hard and he is not sleeping as well. His physician after feeling his pulse, taking his temperature and examining his tongue, shakes his head and tells him he has been over-doing and must take it easier. The dose of iodine is doubled, some drops of digitalis are prescribed for the heart and bromides given for insomnia. Perhaps a metabolism test is taken and this seems to confirm the opinion that the patient has been over-doing because it is twice normal. A month later the patient is surprised



Fig. 6. An "iodine fast" case of exophthalmic goiter. Patient had been on iodine six months; severe post-operative reaction was the result. Patient's life saved by oxygen tent.

because he is only able to pull on his shoes with considerable difficulty. Surely there must be something wrong with the kidneys. Further consultation results in the patient going to bed on a restricted diet with an increased dose of digitalis. After a few days digitalis produces its full

effect and anorexia develops in place of the formerly "splendid" appetite. The family now greatly alarmed asks for consultation, and another physician who has observed other unfortunate cases as this recognizes this condition as one of "iodine fast" exophthalmic goiter—a condition in which after a few weeks of improvement the patient develops a tolerance to iodine so that the disease progresses in spite of the iodine. Seemingly improving and progressing to a cure on account of the gain in weight, loss of stare and tremor and nervous irritability, there is on the contrary a progressive damage to the cardiovascular system. The heart is often decompensated, ascites may develop, hypertension follows and the risk of operation is now increased tremendously. I called attention to this condition at the meeting of the American Association for the Study of Goiter at Denver in 1928: Ewell and I recently reported a long series of these cases.

In my experience two deaths resulted in patients of this type, both of whom had been kept on iodine for several months. A number of others were saved only by means of stage operations, the oxygen tent and the use of iodine intravenously or by the duodenal tube in large quantities. The prognosis in any cases of this type should be extremely guarded because one is dealing with just as serious a problem in many instances as confronted the surgeon previous to the introduction of iodine by Plummer in 1922 in the pre-operative preparation of such patients.

In 1924 before we were aware of the danger or really appreciated the full benefit to be derived from the use of iodine in exophthalmic goiter, I reported the fact that a complete reversion of hyperplasia to the colloid state did not occur even on patients who had been kept on iodine several months. Some areas of hyperplasia always persisted. Likewise, there was a secondary rise in the metabolic rate with a persistence of clinical symptoms. These observations have been confirmed and time has shown that iodine is a two-edged sword with regard to the treatment of exophthalmic goiter.

If in doubt as to the diagnosis there is no objection in giving a patient a therapeutic test of iodine for a week, preferably after taking a metabolic test. This should be sufficient, for if the patient really has an exophthalmic goiter

there will be a considerable improvement accompanied by a fall in the metabolic rate. If the iodine is stopped and the symptoms again return, together with a rise in the rate, the diagnosis should be settled, and the patient given a period of preparation not to exceed two weeks and then operated upon. In my experience the most favorable prognosis can be given in a patient who has received no previous medication if the goiter is removed eight to ten days after starting the iodine. This, of course, implies that a rest period and a high caloric diet has been given, and that the heart is compensated.

CONCLUSIONS

1. No attempt is made to discuss the generally better understood problems of diagnosis and classification.
2. A few of the more important sources of error in diagnosis and treatment are presented from our records.
3. Particular emphasis is laid upon mistakes in diagnosis arising from failure to interpret properly the basal metabolic rates.
4. The differential diagnosis of neurasthenia and hyperthyroidism is considered of importance.
5. Hyperthyroidism simulating heart disease in older persons is frequently a perplexing diagnostic problem.
6. Attention is called to "iodine fast" cases of exophthalmic goiter and the danger of the prolonged use of iodine.

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GENITO-URINARY ANOMALIES*

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Mr. Chairman and Members of the Radiological Section of Illinois State Medical Society:

Before beginning my paper I want to give Dr. Alcock, Professor of Urology of the State University of Iowa, credit for all of this work as the films and histories were taken, through his

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ecourtesy, directly from the files. The films and cases that I will discuss comprise some of the most unusual and interesting anomalies of the kidneys and ureters which have been found on the urological service at the State University of Iowa by Dr. Alcock of the past fifteen years. A portion of these cases were done while I was in the X-ray Department of the State University of Iowa Hospital.

To thoroughly understand the mechanism and development of these anomalies, it is necessary to consider the development of the kidney and to go into the embryology of the genito-urinary tract rather extensively; however for a lack of time I will not include this in my paper. There are a few points I would like to bring out before taking up the cases.

First, is the fact that there are a great many more anomalies found in the genito-urinary tract since the advent of the X-ray and visualization of kidney pelves and ureters than before and the reason for this is self evident as that portion of the genito-urinary tract above uretero vesicle orifices cannot be visualized in any other manner and this portion frequently holds many mysteries and possibilities in diagnosis. While at the University Hospital I noticed Dr. Alcock using the X-ray more and more every day and I have heard him say in several talks that to study the genito-urinary tract above the uretero vesicle orifice one is compelled to depend on x-ray findings to a great extent and he advises the free use of this method of investigation of these regions.

Second, the percentage of anomalous kidneys and ureters is apparently higher than it is ordinarily supposed to be even after examination by means of pyelography unless the urologist is continually on the watch for these conditions. It is very easy to do a pyelography, catheterizing a right and left ureter and filling them with sodium iodide and getting films and overlooking a bilateral double kidney and ureters. One should always look for other uretero vesicle orifices and be suspicious of anything that would suggest such an opening. These openings are often found in abnormal positions and some even in the urethra. I will have more to say about the position of the orifices in relation to the kidney pelves further on in my paper.

Third, we have noticed a particularly high per-

centage of anomalous kidneys which show pathology. In talking this over with Dr. Alcock, he thought I would be perfectly safe in saying that 75 per cent. of the anomalous kidneys show definite pathological changes, particularly stones, hydronephrosis, tuberculosis and sometimes hypernephroma. It is in these cases that it is so essential to diagnose the anomaly as it frequently happens that the right and left pelves that are catheterized are apparently normal, or very nearly so, and yet the patient is definitely a kidney case symptomatically.

I believe the roentgenologist should give the urologist as much help as possible in picking out these anomalous kidneys and ureters and I want to bring out two or three points where the roentgenologist is sometimes the first one to get a hint of such a condition. An elongated kidney should always raise the suspicions of the roentgenologist as to the presence or absence of an anomalous kidney, these usually being double pelves, double pelves with bifurcated ureter or double pelves and double ureters. This information, that is, elongated kidneys, is a very important point as one sees a great number of kidney shadows since there are a larger number of flat G-U plates taken than complete pyelograms. On the pyelogram one frequently notices an elongated kidney with pelvis either in the upper pole or located very near the tip of the lower pole and this is practically diagnostic of the double kidney. The upper kidney pelvis in double kidney pelves has a quite characteristic shape and configuration and should never be overlooked even though there is no other evidence of an anomaly. This kidney pelvis is more or less spider shaped and usually points more upward and outward than a normal kidney pelvis. Usually the uretero vesicle orifice from the superior pelvis is located lower in the bladder than the ureter draining the lower pelvis, thus giving you one long and one short ureter in this anomaly. This frequently aids the urologist in his search for the other uretero vesicle orifice when double kidney is suspected. Another point that should make a roentgenologist very suspicious of a double kidney is the presence of a bud from a ureter as this usually means a bifurcated ureter with double kidney pelvis. Of course, the absence of a kidney shadow after repeated films taken with high milliamperage, low voltage and a relatively short

exposure then makes one suspicious of a congenital absence of the kidney. This same finding, together with a soft tissue shadow elsewhere, suggests very strongly the presence of an ectopic kidney.

Smith, Lester; aged 22 years. Films 333 to 337 incl. Points of interest:

1. Double right ureter with one of them opening into the prostatic urethra.

2. This ureter which empties into the prostatic urethra a hydroureter and leads to a very large infected hydronephrosis.

History: The patient had always had a weak back and for two years prior to July, 1925, the pain in the back on the right side had been so constant as to prevent him from doing any work to speak of. On July 22, 1925, he experienced his first acute attack. He thought that he had had some slight cold just prior to that time. The pain in the right renal region came on gradually and gradually got worse so that in about three hours it was extremely severe. As the pain increased he developed nausea and vomiting. The pain radiated to the right groin and into the bladder and he had frequent frequency. Within 12 hours of the onset of the pain he had a violent chill of 30 minutes duration and his temperature went to 104. He was admitted to the hospital on the third day of the attack July 25, 1925, with a temperature of 103. He looked very sick. There was much frequency and some burning and smarting on urination and the urine contained a small amount of pus. There was a rather large and very painful and very tender mass in the region of the right kidney. The Wbc was 18,000. Six hours after admission the pain very suddenly disappeared and the mass in the right kidney region could no longer be palpated. The urine immediately was loaded with pus until it was milky. The temperature dropped immediately to normal and the patient's condition rapidly changed for the better. The Wbc dropped at once to 9,000.

Herman, Mrs. Grace; aged 43 years. Films 416 to 422 incl., and 431 and 654.

Points of interest:

1. Bilateral duplication of ureters and pelves.

2. One pair of ureters—a right and a left one—opening normally into the bladder.

3. *Another pair of ureters, a right and a left one, opening into the urethra and leading to upper right and left pelves.*

4. All pelves except the upper left one are normal and this one is hydronephrotic and is the cause of the practically symptomless haematuria.

5. Symptomless haematuria from a hydronephrosis.

History: This patient came to the hospital on account of her diabetes and not for any urinary trouble. In her history however she told a story of attacks of hematuria extending back over a period of 2 years. The hematuria was entirely symptomless and was of the gross type and would come without apparent cause and last for from 2 to 5 days and then suddenly stop.

She had had about 3 or 4 attacks each year since 1924 or 1923. Repeated questioning failed to bring out any story of other symptoms unless it was a slight discomfort in the region of the left kidney. There was no blood in the urine while she was in the hospital in December of 1926 and the physical examination failed to reveal any findings relative to the urinary tract. She is a large fat woman and the kidneys cannot be palpated through the thick abdomen. X-ray pictures were negative for anything suggestive of stone shadow and the urine was negative for blood and showed only a very few Wbc.

Lampasis, Wm.; aged 37 years. Films 506 to 510 incl., and 655 and 656.

Points of interest:

1. Bilateral double kidneys with complete double ureters on the left side and a bifurcated one on the right side.

2. Symptomless hematuria.

3. Bilateral renal Tbc, the diagnosis being made on the typical pyelograms and the bilateral 'sterile pyuria.

History: About the only symptoms that the patient has ever had has been a gross hematuria. He has had some indefinite pain in the region of the left kidney but it has been so vague and so slight that it can hardly be taken into account. There have been two attacks of gross hematuria, one a year before admission to the hospital and the other one 5 days before coming in. In March or April of 1927 he had his first attack of hematuria. Without cause and without any symptoms of any kind he noticed that he was passing gross blood well mixed with the urine. This kept up for about 48 hours and then stopped suddenly. He thinks that he may have had some slight dull ache in the left kidney region but was not sure about this. There were some small irregular blood clots but no fish worm clots and there were no bladder symptoms at all. He thought little of the attack and did not consult an MD.

There was no recurrence of the condition and he was perfectly well until 5 days before admission to the hospital when he again noted that he was passing gross blood. There was some slight ache in the region of the left kidney and there were a few clots in the urine but no fish worm clots. No chills. No bladder symptoms.

Rowe, Mrs. Berie; aged 64 years. Films 644 to 647 incl.

Points of interest:

1. Bilateral renal calculi.

2. Double right ureter and pelvis with two large stones in the lower right pelvis.

3. Left calculus pyonephrosis with almost complete destruction of the left kidney.

4. The upper right kidney was the only kidney that had any function.

History: In 1926 or three years before admission to the hospital the patient had quite a severe attack of pain in the upper right abdomen and right back. It came on quite suddenly and without cause and did not appreciably increase and after about 6 hours gradually

disappeared and left a residual tenderness for three or four days. She was in bed for three days but did not call a doctor and the pain was not severe enough to require morphine. There were no bladder symptoms and there is nothing in the history to indicate whether or not the urine showed anything abnormal.

Two years later or in April, 1928, she had another attack very similar to the first but this time the pain was on the left side instead of on the right and she thinks that pus was found in the urine but is not sure about it.

Since April, 1928, she has had more or less vague and indefinite symptoms of back ache in the region of the left kidney but these symptoms have never again been severe and she has paid little attention to them thinking that they were a part of her general weakness. For 6 or 8 months her general health has been going down hill and there have been very few localizing symptoms or findings except some slight frequency of urination and a definite and constant pyuria. She has lost much in weight and strength and complains of never having any ambition and being constantly listless and tired and sleepy and with no desire to eat. There have been no chills but on several occasions one or two degrees of temperature have been noted.

Wade, Charles W.; aged 56 years. Films 338 to 342 incl.

History: The patient never had any urinary trouble until sometime in 1923. At this time he became ill, running a temperature without localizing symptoms except pyuria. The temperature ranged from 101 to 104 with some chills. There were no localizing symptoms and it was only the pyuria that led to the diagnosis. There was no pain over either kidney and no bladder manifestations. For three weeks he was up and about but was then confined to bed and at the end of the fourth week he was taken to St. Louis and was under the care of Dr. John Caulk for several weeks. Dr. Caulk ran him through a routine GU examination and found a marked infection of both kidneys more pronounced on the right side than on the left. *X-ray pictures were negative for stone shadow.* There was definite renal insufficiency and signs of uremia. The phtalein after intravenous administration appeared from the left kidney in 35 minutes and from the right in 40 minutes and only very small amounts, much below normal, were excreted from each organ in the following 15 minutes period. The ureters were catheterized nearly every other day and the pelvis washed out for a period of several weeks and the patient made a good recovery. The temperature dropped and the pyuria cleared up entirely and the renal function became normal. *Pyelograms were not done.* Dr. Caulk evidently thought that the cause of the infection was in the teeth as he had several of them extracted.

He had no further trouble and was in good health until the first part of August, 1927, or about five weeks before he was admitted to the University Hospital. Previous to this however he had had some attacks of pain in the left back during May and June of 1927. From the first of August he began to have very definite attacks of sudden severe pain in the left kidney region

accompanied with chills and a temperature as high as 103. The attacks last 2 to 3 days and the pain leaves as suddenly as it comes on. With the first attack showing temperature he noted marked pyuria.

DISCUSSION

Dr. H. P. Lee, Iowa City, Iowa: I do not know of any series of organs in the human body that presents more interesting anomalies than does the urinary tract. I believe the anomalies in the urinary tract are a great deal more common than one would ordinarily suppose. We have sort of an adage in our clinic at Iowa City that there are no short cuts in urological diagnosis, and on that basis we have developed more or less of a routine.

We, or course, visualize findings in the bladder, but we take x-ray pictures almost routinely in any case where we suspicion anything above the bladder, and I believe that is the reason we have found so many anomalies in the urinary tract. There is hardly a week goes by that we do not find one or two. Of course these patients are referred to our clinic because of suspicion of pathology in the urinary tract.

These anomalies certainly do have a great deal of clinical significance. A number of patients will present no history or findings that will lead one to suspect anomalies and they are found accidentally on routine urological examination. Others, however, will give definite earmarks.

The x-ray man can certainly help the urologist. The x-ray man will notice the discrepancies in the films, and if these things do not check up with what you would expect from the history of the case he should suspect urinary anomalies, and have a critical mind so he will be able to pick up anything he happens to see that is off color.

Dr. Isaac Gerber, Providence, R. I.: In connection with this problem I should like to say something about the new method of urography by means of the intravenous injection of uroselectan. Personally, I have not used this for the good and sufficient reason that I cannot get it, but I have had the opportunity of watching it used at the Mount Sinai Hospital in New York. I have also seen the work done in two clinics in Boston where certain amounts were turned over to be used under the supervision of selected urologists.

For those of you who are not familiar with it, I would say that it is a chemical substance that has a particular affinity for excretion into the urine, the same as the Graham dye is excreted into the bile. It is intravenously injected in fairly large amounts, diluted with 100-150 cc. of water. It is injected rather slowly and you get a very slow bilateral excretion into the urinary tract. Eventually you have a complete filling of the pelvis, the ureter on both sides and the bladder. The method likewise gives considerable information as to the functional activity of one side or the other.

Of course, the future is going to bring out the real value for this method, but it will by no means replace cystoscopic manipulation. So much can be found in the cystoscopic examination which cannot be detected

otherwise. But on the other hand, it is going to enormously widen the field in which pyelography will be done, because even today there is a large proportion of patients who either refuse cystoscopic examination because of the difficulties which some of their friends may have had, or are in a condition which does not make it advisable to put them through the pain or shock. On the other hand you may have children particularly where it may be very difficult or perhaps impossible to do an adequate systoscopic examination.

One advantage you do not get with the systoscopic method is that you do not have the opportunity of watching the gradual filling and emptying of all three portions of the tract, particularly the pelvis and the ureters. You can be certain about ureteral pathology. All these anomalies that we saw today are going to be detected at the first examination and not by finding characteristic defects and using three cystoscopic manipulations. You are going to show stones that are overshadowed. On the first examination you will see a faint outline of a shadow, maybe overshadowed by the dye, and later you will see the shadow again and thus be certain. You will not get distortions due to overloading of the calyx or of the pelvis such as you get from overpressure.

Of course, the method is being used now only as a research method in the hands of a few selected people, but I feel when it is popularized it is going to make the pyelographic work of the rotegenologist multiply four or five times, and its usefulness will multiply accordingly.

THE TREATMENT OF CHRONIC MYOCARDITIS*

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CHICAGO

There seems to be a more or less natural tendency to neglect professionally that group of cases classified as chronic myocardial degeneration, mainly because it occurs at a period of life when even the best results do not offer so much in actual prolongation of life. Nevertheless, when intensively studied, this group may be made extremely comfortable, often their capacity for physical effort greatly increased, and unquestionably in a large percentage of cases, a useful life may be definitely prolonged.

The proper treatment of this group of cases depends first upon a definite understanding of the underlying pathology and of what is to be expected from the therapeutic action of the drugs used. By chronic myocardial degenera-

tion we have in mind a heart that grossly shows usually hypertrophy of the left ventricle, often the right, and very often with concomitant dilatation. On cut section of such a heart the pink color of the muscle is seen to be streaked by areas of grayish white tissue which is fibrous scar tissue that has either developed as a result of outgrowths from perivascular changes or from the replacement of degenerated muscle fibers by scar tissue. There is still considerable discussion as to the actual cause of this lesion.

One group represented by Warthen and Clawson maintains that these fibrotic changes are the end result of acute inflammatory reaction, either perivascular or in the muscle tissue. Another and larger group of pathologists holds that these changes are the result of degeneration of muscle fibers following diminished nutrition or blood supply. Usually, grossly, two marked changes in the coronary vessels will be seen either in the form of diffuse sclerosis or arteriosclerotic patches in the intima, or if not grossly seen, microscopic changes will be found. It seems logical that this fibrosis is most likely the result of circulatory change. As a result of restricted blood flow through the constricted artery it is easy to see, especially under increased function, that there may be a great enough loss of blood flow to produce localized degenerative lesions, these being ultimately replaced by fibrous tissue.

This being true we may more probably say that chronic myocardial degeneration is really a part of the pathology of arteriosclerosis of coronary circulation. This is further amplified by the fact that we find this disease occurring during that period of life when vascular degeneration is present to a greater or less degree in other organs of the body. While occasionally the myocardial symptoms may be predominant, they are usually associated with other diseases recognized as being degenerative, namely, generalized arteriosclerosis with or without hypertension, the chronic nephritis of arteriosclerosis and pulmonary emphysema.

In other words, we are dealing with a lesion that is a part of a general degenerative process that occurs with increasing age, the date of onset and severity varying greatly in different individuals. If this conception is correct, our therapeutics then are given to increase first blood flow through the coronary vessels, thereby increasing muscle nutrition, and again, the use

*Abstract of a discussion of symptoms and treatment of chronic myocardial diseases before the Rock Island County Medical Society, May 13, 1930.

of those drugs which increase the contractile power of the heart.

In recent years a group of drugs has been extensively studied that has a specific dilating effect upon vessels as a whole, and especially those of the heart itself. This group of coronary artery dilators consists first of the nitrites which produce prompt and extreme increase in coronary flow, as shown in experimental studies, but have a disadvantage of their action being of very short duration. As will be seen later this group has a real value in emergencies, but is unsatisfactory in any attempt to keep up permanently an increased coronary flow. The next group consists of a series of compounds derived from caffeine and theobromine. Caffeine and its derivatives are only moderate in their action on the coronary vessels, and have the disadvantage of producing considerable cerebral stimulation with consequent loss of rest on the part of the patient. The theobromine series, on the other hand, produces marked coronary dilatation, and at the same time affects slightly the cerebral centers. In this group the most efficient are euphyllin, theocalcium, theosine and diuretin.

All this group are satisfactory coronary dilators, the latter two having also the advantage of being the most marked diuretics. Unfortunately all of them except theocalcium, when taken over a long period of time, tend to upset the stomach. The most satisfactory coronary dilator is euphyllin in doses of $1\frac{1}{2}$ grains three times a day. If this upsets the stomach it may be replaced permanently or for short periods of time with $7\frac{1}{2}$ grains of theocalcium three times a day. This very rarely upsets the stomach and can be taken usually indefinitely without any disturbance. This group is especially effective in those individuals who as a result of their coronary disease are having anginal attacks on exertion. If sclerosis of the arteries has not advanced to a point where the arteries are no longer capable of dilating, the giving of euphyllin or theocalcium usually increases greatly the amount of effort these individuals can undergo without bringing on an attack of angina.

For treatment of the anginal attack the nitrites in either the form of nitroglycerine or amyl nitrite are preferable because of their rapid action and greater dilatation of the coronary arteries.

Not only this group but also a group showing moderate effects of decompensation, as dyspnea on exertion, some edema of the feet at the end of the day, will usually show marked improvement by the giving of either of these drugs.

In this group of cases digitalis is given for its tonic effect on the muscle and not to produce what is ordinarily called complete digitalization. From much of the literature which has appeared as a result of the work of Thatcher and Eggleston, the idea seems to be prevalent that it is useless to expect satisfactory effects from digitalis in any except full physiological doses. This is especially true in auricular fibrillation where the specific effect of digitalis in blocking impulses between the auricle and ventricle results in the slowing of the pulse rate. But advantage can be taken of the several actions of digitalis—first, through its effect on the vagus centers there is a slowing of the heart rate which is produced largely by increasing the diastole, which means a more complete filling of the heart and as an end result increasing strength of contraction. Very closely associated with this effect is the direct effect on the heart muscle of increasing tone and also contractibility. These results can be achieved with quite moderate doses of digitalis, certainly markedly below those doses required for the production of toxic symptoms.

Very often in those individuals who complain only of fatigue and slight or moderate dyspnea, the giving of a grain and a half to two grains of digitalis a day will cause complete disappearance of symptoms for long periods of time. It is rare that it is necessary to give over three or four grains a day, and there are very exceptional instances in which one grain a day is entirely sufficient.

I desire to call attention especially to the fact that when digitalis is prescribed in liquid form a drop with the ordinary medicine dropper represents usually not more than one-half minum. A grain of powdered leaf represents ten minums of a standard tincture, so that one prescribing tincture digitalis in drop doses is giving only half the amount he expects on a minum basis, and certainly digitalis in doses of five drops ($2\frac{1}{2}$ minum dose) is ineffective. Further, it is quite common to have patients state that they take digitalis only when feeling badly and feel its effect in a very few minutes. This

effect can only be psychic, since it takes several hours for a dose of digitalis to have any effect and probably any effect of digitalis is only obtained after a certain concentration is reached and maintained in the blood stream.

Besides the direct medication of these patients a great deal may be done in modifying their mode of living. These patients must be made to recognize the fact that they have reached a point in life where their activity must be definitely restricted compared with the normal younger individual, by modification of working hours, by additional rest periods, such as naps after meals, by the cutting down of excessive golf, these individuals can be made much more comfortable. Often when these individuals are beginning to show even moderate signs of slight decompensation or are having frequent attacks of angina, a marked improvement and one that is more lasting may be achieved more promptly by two or three weeks complete rest in bed, or a change to some watering place. In those individuals with marked emphysema or bronchial involvement with resulting cough, very marked improvement may be obtained by sending them to a warmer climate during the winter months. To a lesser degree the winter climate is certainly of definite value to the whole group.

30 N. Michigan Ave.

SPINAL ANESTHESIA—REVIEW OF THE LITERATURE

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Within the past few years spinocain solution has become very much popularized for the production of spinal anesthesia; perhaps preferably called spinal analgesia since the tactile and thermal sensations are not completely abolished by it. Spinocain, first prepared by Pitkin and his co-workers in 1927, consists chiefly of novocaine, and the latter or some other cocaine derivative has now been used quite extensively for spinal anesthesia both here and abroad; and since this type of anesthesia is rapidly gaining popularity, a review of the literature to note the results reported and to familiarize ourselves with

this form of anesthesia has prompted this report.

Corning¹ in 1885 was the first to attempt to relieve pain of a diseased spine by the injection of cocaine. Quincke² in 1891 was the first to withdraw spinal fluid by lumbar puncture. Bier³ in 1899 successfully injected cocaine into the spinal canal, also in the same year Tait and Caglieri⁴ used cocaine in the spinal canal for surgical anesthesia. The results proved very unfavorable and somewhat disastrous up to this time. Then less toxic drugs were introduced—stovaine by Fourneau⁵ in 1904 and novocaine by Einhorn in 1905. More favorable results were then obtained through further efforts by Brauer, Babcock⁶ and Labat⁷. Barker⁸ in 1907 introduced the use of light and heavy solutions of novocaine to control the extent of analgesia. Pitkin⁹ introduced the routine use of ephedrine in spinal anesthesia and perfected the technic of administration.

Technique. Spinocain has proven to be much superior to any preparation previously used. Stovaine and tropacocaine, although they produce more complete relaxation, are less favorable because of the toxic effects, pains and headache produced by them. Apotherisin is also more toxic and produces severe vasomotor disturbances. Spinocain (light) is a solution having a specific gravity lower than spinal fluid and consisting of (Pitkin's solution):

Novocaine	200 mg.	Sp. gr. 1.0005
Strychnine	2 mg.	
Ethyl hydrate	300 mg.	
Amyloprolamin	130 mg.	
Normal salt sol.	QS Ad. 2 cc.	

Amyloprolamine, a starch derivative, renders the solution more viscid, preventing too rapid dissemination and thus prolonging the anesthesia. The strychnine acts as a stimulant helping to prevent too rapid a drop in blood pressure. The technique, essentially as described by Pitkin is as follows: The patient is prepared locally in the usual manner, the bowels are emptied.

1. Morphine $\frac{1}{4}$ gr. and scopolamine 1/150 gr. is given one hour before operation to allay fear and apprehension.

2. Ephedrine is to be given subcutaneously 5-10 minutes before the lumbar puncture to prevent a drop in blood pressure. It is not very effective if given after anesthesia has been produced. The drop in blood pressure is due to

paralysis of the rami communicantis and their corresponding sympathetics thus producing a dilatation of the splanchnic vessels. The dose depends upon the patient's blood pressure and especially upon the height of anesthesia to be produced. 1 cc (50 mg.) is the average dose, if the anesthesia is to expand to the sixth dorsal nerve. Taking the blood pressure of 120/70 as average, a patient having a pressure of 90/60 requires 1 cc of ephedrine to bring it to average, while one having a pressure of 200/100 should not receive more than half the average amount.

3. Lumbar-puncture should be preceded by local anesthesia produced by a cutaneous wheal raised with $\frac{1}{2}$ -1 cc of ephedrine novocaine solution. The puncture should be done with the patient lying on the side with the head slightly lowered. Withdraw about 30 drops of spinal fluid.

4. Injection of spinocain should be done slowly first mixing with spinal fluid, injecting a small amount of mixture and again withdrawing and rediluting with spinal fluid. Dosage of spinocain:

For perineal region—1 cc at 15-18° Trendelenburg position.

For legs—2 cc at 10-15°.

Up to umbilicus—2-3 cc at 7-10°.

Up to costal margin—3 cc at 5°.

The patient is kept in the Trendelenburg position during the operation and the foot of the bed is kept elevated for 12 hours after the operation. Romberger¹⁰ believes that the ideal strength of solution to use is 4 cc of spinocain diluted to a total of 8 cc with spinal fluid. He believes this preferable to the smaller amount recommended by Pitkin, and he does not hesitate to repeat the dose until the necessary analgesia is produced. Pitkin favors the use of a short tapered needle of a small caliber, to avoid hemorrhage, which he believes is responsible for postanesthetic headaches, and also because with a long pointed needle only part of the needle may be inside the dura, thus giving incomplete anesthesia. Analgesia generally lasts 3-4 hours, the spinocain being presumably absorbed along the nerve trunks.

Advantages. Spinal anesthesia is being considered by many as the ideal anesthetic and has been called by some the "surgeon's paradise." It does not produce the complications common to inhalation anesthetics, such as bronchitis, pneumonia, lung abscess, ileus, cardiac or gastric

dilatation, albuminuria or acidosis. It is, therefore, especially indicated in advanced cardiac or pulmonary diseases, renal disease, hypertension and in emergency operations, especially if the stomach is not empty. It produces almost absolute muscle relaxation and is therefore very useful in strangulated hernia, intestinal obstruction and for the relief of paralytic ileus. Favorable reports concerning the use of spinocain are found in the various specialties such as that of Albee and Fry¹¹ in orthopedic surgery, Jeck¹² in urology, Cosgrove¹³, and Pitkin and McCormack¹⁴ in obstetrics and Case¹⁵ in abdominal surgery. The advantages, for example, in obstetrics as suggested by Pitkin and McCormack may be listed as follows:

The dangers of inhalation anesthesia are eliminated, as cyanosis, suffocation, and swallowing the tongue.

Asphyxia or cyanosis of the child is less frequent.

Transmission of ether, chloroform, etc., to the child is eliminated.

Post operative lung and intestinal complications are less frequent.

Dehydration is not produced and fluids may be given ad lib. which is particularly desirable in toxemias.

Patients may co-operate easily. Shock is eliminated.

Vomiting is rare. Distension and ileus do not occur as with inhalation anesthesia.

Cardiac and pulmonary cases may take the anesthetic more safely.

Post-partum hemorrhage is less frequent. The uterus contracts quickly.

Rapid dilatation with softness of the cervix and extreme elasticity of the cervix is produced.

The opinion of physicians specializing in anesthesia would be valuable here. Romberger¹⁰, who has administered over 20,000 inhalation anesthetics in the past fifteen years, states that the post operative morbidity is considerably less under spinal than any other type of anesthetic he has ever administered. Stout¹⁶ reports volume control technic in 600 cases, stating that he can produce satisfactory anesthesia to any desired level of the body by the use of novocaine in spinal fluid. Later he reported 1,000 spinal anesthetics from the Jackson Clinic without a single fatality directly or indirectly traceable to

the anesthetic. Furthermore, a questionnaire submitted to patients after operation revealed that 95 per cent. declared themselves preferring spinal to inhalation anesthesia.

Disadvantages. Rygh and Bessesen¹⁷ in reviewing the literature with reference to causes of death from spinal anesthesia found only four deaths out of 44,241 cases directly due to the anesthetic, being due either to vasomotor paralysis or interference with respiration. Vasomotor paralysis is manifested by nausea, pallor, cold sweat, slow pulse and drop in blood pressure. This may be prevented by the use of ephedrine before and adrenaline during the anesthetic. Blood pressure readings should be taken frequently, especially the first 15 minutes of the anesthetic. Respiratory paralysis may be avoided by preventing the anesthetic from extending beyond the diaphragm, and if it develops, artificial respiration aided by adrenaline and caffeine should be instituted.

Failure to obtain analgesia may be due to one of two reasons: 1. The injection was either wholly or partially extradural due to movement of the needle. This is by far the most common cause and a second attempt will usually be successful; or 2, Idiosyncrasy to novocaine.

Post operative headache may be eliminated by proper technic as suggested previously, but if encountered is best relieved according to Koster¹⁸ by retention enemas of 6 ounces of 50 per cent. magnesium sulphate every 4 hours in order to lower cerebrospinal pressure.

Stout recommends the use of sodium barbital 10 grains given by mouth 1½ hours before operation to prevent the possibility of convulsions which rarely occurs. One should be careful of hemostasis especially if the blood pressure is lowered by the anesthetic.

There are various reports, especially in foreign literature, of neurologic complications. Most of these reports, however, do not include the improved solution and technic by Pitkin. Koster mentions several cases of diplopia developing with spinocain and one case of paresthesias of the buttocks and anal region lasting only a few days, and one case of inability to use the extensors of the left leg for four months. The authors have noted paresthesias in the legs persist for weeks with the use of spinocain. Paul¹⁹ reported in 1921 on residual spinal cord symptoms

with loss of sphincter control and development of saddleback anesthesia, and loss of sexual feeling in one case. Degenerative myelitis²⁰, probably due to direct injection of fluid into cord, has been reported. Ferey²¹ reported a case of hemianesthesia developing as a complication. Violato²² reported on ocular complications. Tremitterra²³ spoke of a case of vitiligo developing after spinal anesthesia.

Although there is an enormous amount of literature on spinal anesthesia, its development, perfection and statistical reports with arguments for and against its use, one finds that surprisingly little has been written as to pathologic study of the brain and cord either experimentally or post-mortem in the human in whom spinocain had been used. Pitkin²⁴ reported that novocaine in 5, 10 or 20 per cent. failed to produce any macro. or microscopic changes in the cords of dogs autopsied at 2, 4 and 5 days, and one dog at 10 days after the injection. No examination was made more than 10 days following the injection. He did, however, find pathologic changes following the use of stovaine. Under 5 per cent. stovaine 30 per cent. of the dogs showed transitory or permanent paralysis of the hind legs. All cases under stovaine showed perivascular round-cell infiltration and swollen axis-cylinders (Cajal stain), marked degeneration of the peripheral nerve fibers (sciatic). Yet, Desplas²⁵ in 1923 reported 2,000 cases of spinal anesthesia by stovaine without one fatal accident and favors the use of stovaine-caffeine mixture. Heineke and Lawen²⁶ in 1905 reported the use of novocaine-adrenaline solution, apparently without ill effects. Their work does not include any pathologic study. Franke²⁷, in 1927, reported an autopsy in a case five days after operation for varicose veins in which 4 cc of 5 per cent. novocain-adrenalin solution had been used intraspinally. The patient was in collapse during the operation. Two days later he had paresthesias and loss of sensation in the legs. Paralysis of the toes developed. The paresthesias gradually ascended and he died on the fifth day. Autopsy revealed bilateral pneumonia, obstruction of the pulmonary artery by clots, the brain showed only cerebral anemia. The spinal cord however revealed a swelling in the lumbar region about 5 cc in extent with an area of softening about 2 cm just above the swelling. The surface of the

cord was irregular and on transverse section showed multiple hemorrhages which reached as high as the medulla, gradually diminishing. Microscopically in the region of the lumbar spinal cord were found hemorrhages in the commissures and posterior horns with scattered streaked hemorrhages in the region of the lateral columns. The myelin sheath stained irregularly in the lumbar region at the parietal columns and pyramidal tracts. The basal fasciculi were well stained and unharmed. The dorsal cord revealed less hyperemia and hemorrhage. The myelin sheath stain here was regular throughout with no recognizable ascending degeneration in the dorsal cord. The author believes that the changes were produced by a decomposed adrenalin solution rather than by the novocain in the mixture.

In conclusion, one sees that clinical reports of thousands of cases seem to favor the use of spinal analgesia with novocain, especially spinocain, although scattered reports of neurologic complications suggest the possibility of pathologic changes by this drug. Also that study of the central nervous system from a pathologic standpoint after intraspinal injection of novocain has been very limited. The authors are at present engaged in such a study, with particular reference to spinocain, because of its widespread use, with special emphasis on the spinal cord changes a longer time than has heretofore been noted after exposure to the drug, so that sufficient time may be allowed for pathologic changes to become evident if such are to occur.

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THE VALUE OF INTENSIVE TREATMENT WITH TRYPARSAMIDE AND MERCURY IN GENERAL PARALYSIS*

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Since Von Jauregg first reported the treatment of general paralysis by the injection of malarial parasites, much work has been done and many reports written as regards the ultimate outcome of these cases. The exact process of the almost miraculous improvement in what has always been considered a hopeless condition is unknown; however, two main theories have been advanced. Some workers consider the hyperpyrexia produced by the malarial paroxysms as the chief cause for remission, others consider the possibility of stimulation of the reticulo-endothelial system plus continued fever. Attempts are being made experimentally to show just what role, if any, the reticulo-endothelial system plays in the amelioration of this condition. About the same time that the pyrexial treatment came into general use the arsenical preparation "Tryparsamide" was shown to have a decidedly valuable effect in tertiary syphilis.

*From the Chicago State Hospital.

The drug has the least spirochaeticidal action of any of the arsenicals, but due to its property of tissue penetrability it is particularly valuable in tertiary syphilis, especially neuro-syphilis. The drug has practically no toxic effect except occasionally a temporary amblyopia. Tryparsamide is usually combined with some form of mercury which is used for its decided spirochaeticidal action.

At the Chicago State Hospital we have used the pyrexial treatment produced by the injection of malarial parasites in combination with a follow-up treatment of tryparsamide and mercury in a large number of cases. We have also used tryparsamide and mercury alone in a number of selected cases. Our results are uniformly good using either method. We have observed that when initial hyperpyrexia is produced, clinical improvement takes place much earlier than when tryparsamide and mercury are used alone; however, an equal stage of remission has been noted with tryparsamide and mercury if treatment has been intensive and continued over a long period of time. The laboratory findings do not show early improvement, in fact, very little change for the better is seen in the spinal fluid immediately following a series of malarial paroxysms. However, when tryparsamide and mercury are given intensively gradual improvement is seen. In many of our cases the spinal fluid has become practically normal. We have occasionally observed a case in which the patient showed clinical improvement with very little change in the laboratory findings, but have never seen a case in which the spinal fluid has become normal and at the same time the patient showing no clinical improvement.

I have selected twenty cases of typical general paralysis, which have been under close observation for a period of eighteen months or more. All have received tryparsamide and mercury each week. Ten cases received an initial pyrexial treatment of malaria. The results show the value of intensive treatment with tryparsamide and mercury. The largest number of doses of tryparsamide and mercury number one hundred ninety-six, the least number forty-eight. All cases have had a weekly urinary examination and have been questioned closely for any untoward symptoms.

Various eye examinations have been made.

CHART 1
ON ADMISSION

Case	Blood	Spinal Fluid		
	Wassermann	Globulin	Cells	Wassermann
1	4 plus	3 plus	20	3 plus
2	3 plus	4 plus	14	3 plus
3	2 plus	3 plus	36	4 plus
4	4 plus	3 plus	84	2 plus
5	4 plus	2 plus	16	3 plus
6	3 plus	4 plus	12	4 plus
7	4 plus	3 plus	41	3 plus
8	3 plus	3 plus	26	4 plus
9	3 plus	4 plus	17	3 plus
10	1 plus	4 plus	23	4 plus

AFTER TREATMENT (TRYP. AND MERCURY)

Case	Blood	Spinal Fluid		
	Wassermann	Globulin	Cells	Wassermann
1	Neg.	1 plus	8	Neg.
2	1 plus	Neg.	6	Neg.
3	Neg.	Neg.	2	1 plus
4	Neg.	2 plus	42	1 plus
5	2 plus	Neg.	9	Neg.
6	Neg.	Neg.	7	Neg.
7	Neg.	1 plus	8	Neg.
8	Neg.	Neg.	11	Neg.
9	1 plus	Neg.	4	Neg.
10	Neg.	2 plus	19	2 plus

CHART 2
ON ADMISSION

Case	Blood	Spinal Fluid		
	Wassermann	Globulin	Cells	Wassermann
1	3 plus	4 plus	11	3 plus
2	3 plus	4 plus	13	3 plus
3	2 plus	4 plus	26	4 plus
4	4 plus	3 plus	43	4 plus
5	4 plus	4 plus	17	4 plus
6	4 plus	3 plus	18	3 plus
7	4 plus	3 plus	34	3 plus
8	3 plus	4 plus	27	2 plus
9	2 plus	4 plus	9	4 plus
10	2 plus	4 plus	14	4 plus

AFTER TREATMENT (MALARIA, TRYP. AND MERCURY)

Case	Blood	Spinal Fluid		
	Wassermann	Globulin	Cells	Wassermann
1	2 plus	2 plus	13	2 plus
2	Neg.	Neg.	6	Neg.
3	1 plus	2 plus	17	1 plus
4	Neg.	Neg.	9	1 plus
5	Neg.	Neg.	9	Neg.
6	Neg.	2 plus	17	1 plus
7	Neg.	1 plus	12	1 plus
8	Neg.	1 plus	19	2 plus
9	Neg.	Neg.	9	Neg.
10	1 plus	1 plus	12	2 plus

Chart I represents a series of cases treated with three grams of tryparsamide intravenously and one and one-half grains of mercury salicylate intramuscularly each week. All have been treated for at least two years with as few periods of rest as possible. The oldest case has been treated constantly for six years. The number of treatments range between ninety-four and one hundred ninety-six doses of tryparsamide and mercury. Eight of the ten cases clinically show

complete remission and are working daily. The remaining two cases are still in the hospital showing some improvement, but not sufficiently so as to carry on their work on the outside.

Chart 2 shows a series of cases which have been treated by injection of benign tertian malarial plasmodia. Inoculation was made by intravenous injection of 3 c.c. of infected blood from a previously infected individual. Chills and fever were allowed to take place over a period of four weeks and then arrested by administration of quinine, ten grains T.i.d. for three days. Some cases received two and some as many as three series of malarial treatments. All cases were followed up by administration of three grams of tryparsamide intravenously and one and one-half grains of mercury salicylate intramuscularly each week, with no periods of rest. Eight cases have received constant weekly follow-up treatments for an average time of eighteen months. Two cases developed amblyopia after the first few treatments with tryparsamide so the follow-up treatment has been confined to the intramuscular injection of mercury only. Clinically, five of the preceding cases show complete remission and are working daily. Three are much improved and two cases which received no tryparsamide show very slight improvement.

Summary and Conclusions: Twenty cases of general paralysis were treated intensively with tryparsamide and mercury. Ten received initial pyrexial treatment of malaria. Treatment continued for a period of time ranging from eighteen months to six years with the least number of periods of rest possible. The largest number of injections of tryparsamide and mercury were one hundred and ninety-six, the least number, forty-eight.

Thirteen cases show complete remission.

Five are much improved and two show slight improvement. Clinical improvement was noted early. Laboratory findings gradually improved, but only after long continued, intensive treatment with tryparsamide and mercury did they become normal. In two cases tryparsamide could not be given. These two showed the least improvement.

These results lead us to believe that long, intensive treatment with tryparsamide and mercury offers the best chance for lasting remission.

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RESULTS OF THE TREATMENT OF PULMONARY TUBERCULOSIS BY THIOSULPHATE OF GOLD AND SODIUM*

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For over four years the author has studied the action of thiosulphate of gold and sodium (sancrysine of Mollgaard, crisalbine of Poulenc) in the treatment of pulmonary tuberculosis.

In previous instances he had come to the following conclusions:

1. That the thiosulphate of gold and sodium is not a specific drug for tuberculosis;
2. That this drug often exerts a favorable action on pulmonary tuberculosis;
3. That this favorable action is most evident in the evolutionary periods of pulmonary tuberculosis.

Today with more extended statistics, not only can we confirm the results related in the past and bring forth some new facts on the action of this sort of gold, but show the considerable improvement in the radiographic images which may be noted a few months after treatment, and also report happy results in certain cases of apyretic forms of tuberculosis.

We will divide our observations into two groups:

1. The chronic cases, whether with little fever or without,
2. The acute forms or rather those with acute evolutionary stages.

As we have already stated, it is this last group which has furnished us the greatest number of interesting facts.

1. FEBRILE CASES

Actually, we have treated 142 such cases of pulmonary tuberculosis.

In 62 of these cases the treatment produced a slow lowering of temperature, which finally led to the apyretic stage.

In 80 patients not improved, 58 had received a sufficient treatment, whilst the others only had a few injections of gold. We will, however, include these in our total percentage. Counting

*Read before the members of the 1929 Foreign Assemblies of the Inter-State Post-Graduate Medical Association of North America, Paris, France.

these, the statistics show more than 43 per cent. arrests of the acute stages.

Let us study more closely the most favorable cases out of the 62 actually observed by us.

On the whole, this favorable result manifests itself by an arrest of the evolutionary stage with the usual clinical consequences of such an arrest; dropping of fever, increase in weight, improvement in the general condition, lessening of the functional signs, slight amelioration of the physical signs.

The following is a description of the development of the two symptoms, the modifications of which are at the same time most objective:

(a) *Temperature curve.* The examination of this is most characteristic. The frequent coincidence of the temperature going down at the beginning of the treatment and the progressive continuation of such with each injection of this drug, are the best arguments in its favor.

This influence can be observed in cases of sudden evolutionary development, with temperatures going from 38°C to 39°C (100.4 to 102°F). One knows, however, of the frequent tenacity of these febrile states in tubercular cases. Some favorable results were observed in patients who presented a temperature "en plateau" for several months, notwithstanding rest in bed.

In fact, in order to be sure of our results, it has been our practice to observe the patients for about three weeks and start the treatment only when the temperature does not show any tendency to a sudden drop.

(b) *X-ray findings.* We had stated at one time that the x-ray images showed very little modification in a majority of cases, but today we bring documents which seem to prove the contrary.

This change of opinion is due to the fact that we are able to observe and examine these cases again six months or a year after the treatment, and very often a radiological modification of the lung picture is only manifested after this long space of time. During the treatment, however, the x-ray pictures undergo very little modification, notwithstanding the improvement of the general condition.

The actual modifications soon after a certain space of time indicate a tendency to sclerosis: the shadows become more marked and the extent

of the lesions diminish as a consequence of a progressive retraction of the infected region.

In other cases, the shadows fade out, although their outline does not seem to change.

In some cases the modifications are very marked and even with regard to the volume of the cavities.

In other words, we have found, in a number of cases, that the treatment by thiosulphate of gold and sodium stops the acute stages of pulmonary tuberculosis, and in some cases, has even arrested the symptoms of caseous-pneumonia.

Is this arrest due to the action of the drug, or is it simply a coincidence, knowing that spontaneous arrests of these stages very often take place?

Spontaneous Arrest of the Evolutionary Crises. To verify this, we have looked over our records of the Hospital Laennec from 1911 to 1925, excluding the war years.

The total number of patients in a state of febrile evolution admitted during this period is 1,934. Of this figure we have eliminated 393 cases who remained less than a month in the service. Of the 1,541 remaining patients, 808 died (more than half); 671 continued their febrile evolution without tendency to defervescence during all their stay in the hospital. The average duration of this was 2½ months. Only 63 patients presented a spontaneous defervescence of their fever.

Thus we only obtain less than 5 per cent. spontaneous arrests of the acute stages, which is a very small proportion if we compare it to the arrests resulting from the gold therapy, which is more than 43 per cent.

We must note that these statistics apply exclusively to the Laennec Hospital service, where the recruiting of patients has not varied since the application of the treatment. We can therefore very justly compare the two statistics.

Future Results. We have not been able, on account of the fact that our statistics deal with hospital patients, to follow many of them for a long period.

Those that we have seen show that the improvement after the use of gold salts, is not always durable: 17 patients died in the course of the next acute attack in a delay varying from six months to two years after the treatment.

In 15 other cases, however, the apyrexia per-

sisted and a certain number returned for a second series of injections to fortify the results already obtained.

In no case could we speak of a true and final cure of tuberculosis, but the considerable clinical amelioration was continued, allowing the patients to again resume their work and life. Thirty patients who have been followed only for a few months also allow us to justify these hopes.

2. APYRETIC CASES

We have treated a certain number of apyretic cases. Though we cannot report statistics of great value we were struck by three facts:

1. We have seen some cases who were discharged from the hospital as being very little or not at all improved by the treatment, return to us two or three years thereafter, practically cured, having taken up their profession and complaining of no symptoms, either functional or general, and the x-ray screens no longer showing pathological shadows.

2. We have seen other cases who were treated off and on, who continued their daily occupation whilst receiving treatment, who were improved notwithstanding the very unfavorable life they were leading.

3. We have observed one case of a pregnant woman, without fever or evolutionary stages, whom we have treated from the seventh month of her pregnancy. She was confined normally and went through the post partum period without any modification of the lesions.

It is true that we have but one case of this kind and have not yet found any others to substantiate these results.

In conclusion, we have treated 29 apyretic cases; most of them could not be followed for more than a year. It is very hard to conclude as to the value of the treatment, however, but we have the impression that the treatment by the salts of gold has also a favorable action on apyretic cases.

We have the impression that the action of thiosulphate of gold and sodium is too inconsistent to be considered a specific, but it is too frequently brilliant to be rejected. It is probable that this drug does not possess bactericidal properties with regard to the bacillus of Koch, but its restricting action on the phenomena which characterize the evolutionary stages, its action which favors the regression of the lesions—action

which is demonstrated in the pictures which we show today, as well as those made known by other authors—the persistence of the effects obtained, allow us to conclude that the influence of this drug does not limit itself to the simple temporary clinical cure of the evolutionary crises, but that it, without doubt, exerts on the tubercular lesions themselves, at least in the lungs, a chemico-therapeutic process of which we totally ignore the character.

Medicinal Reactions. The reactions produced by the drug have caused many people to abandon it. However, in our experience, now over a period of four years, we have found that these inconveniences are reduced to a minimum if the following simple rules are followed:

1. Never apply the treatment to a patient who has diarrhea, albuminuria, or who has entered the stage of cachexia.

2. Never reach the dose gr. 0.5 a week in apyretic patients. We have noted, in fact, that the majority of serious accidents provoked by the drug, were produced in apyretic patients treated with strong doses. On the contrary, the febrile cases, notwithstanding a much more intense medication, have always shown reactions of slight intensity if you do not go over the average dose of gr. 0.75 and if you space the injections by intervals of a week.

By following these rules you protect the patient against unexpected accidents and incidents, which have compromised the reputation of the drug when it first was used—complications which we have never met with when following our own technique.

There are, however, some benignant reactions which should be known:

- (a) A frequent febrile reaction, sometime reaching a temperature of 39°C and even 40°C (102 and 104 Fahrenheit) following the injection—febrile reaction which generally lasts less than 24 hours, frequently accompanied by nausea, sometimes vomiting and occasionally headaches.

- (b) Albuminuria occurs in less than one-tenth of cases and generally only as traces.

- (c) Cutaneous reactions occur in the same frequency as the albuminuria. They also mean that the treatment should be interrupted. As a rule, these reactions consist in a slight pruriginous scarlatiniform erythema which disap-

pears in a few days. Sometimes one notes a painful enanthema of the tongue and pharynx.

(d) Digestive disturbances may manifest themselves in the shape of immediate vomiting—sometimes abdominal pains and a slight diarrhea on the day following the injection.

(e) Possibly a slight tendency to hemoptysis may have been ascribed to the drug in a very few exceptional cases.

After the temporary interruptions the treatment should be started again at a lower dose than the one that has caused the reaction, and continued under careful study of future reactions.

Dosage. In the febrile cases we continue to inject relatively strong doses of the drug, less, however, than were originally advised. In principle, we give only one injection every week.

The first week: gr. 0.25. The second and following weeks: gr. 0.50. According to the general condition and weight of the patient, we continue at gr. 0.50 or we may go up to gr. 0.75. The total dose varied between 5 gr. and gr. 7.50.

It is under these conditions that we obtain the minimum of reactions, of which the risk is not comparable with the chances of improvement which we offer to the patient.

As far as apyretic patients are concerned, we rarely go over gr. 0.25 a week. The treatment then must be carried on a long time, and it is difficult to weigh the benefits of the latter as compared with the results obtained independently from the prolonged rest which is simultaneously prescribed.

CONCLUSIONS

We repeat again that thiosulphate of gold and sodium is not a specific remedy for tuberculosis. However, its therapeutic action, though inconstant, seems to us certain. From our experience, it particularly shows and asserts itself in the course of acute forms and especially in the acute evolutionary stages of pulmonary tuberculosis.

In this respect no other chemical drug can actually be compared to it.

If we could summarize our thoughts in a short formula we would say that this drug represents a typical remedy—often efficacious for the evolutionary stages of pulmonary tuberculosis, arresting same and thus favoring the ultimate and partial retrocession of the lesions.

We do not believe that the drug possesses an anti-bacillary action; we rather have the impressions that it exerts its action on the tubercular lesions, at least in the lungs. Nevertheless, there are enough facts actually published for us not to deny the therapeutic virtue of this agent. Our own personal experience has firmly convinced us of this.

TUBERCULOSIS IN INFANTS AND CHILDREN

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When one considers how much has been written on the subject of tuberculosis, one is surprised at the conflicting ideas that are still prevalent amongst the rank and file of our medical profession. We are not aiming to establish anything new in the following discussion, but we hope that by emphasizing certain features and by studying the large amount of material at our disposal we can stimulate a desire for more exact knowledge in those of us interested particularly in the subject of tuberculosis in infants and children.

The course of the pathology of tuberculosis depends to a great extent upon the tissue invaded. Since the physiology and structure of the infant chest differs from that of the adult, we can readily see why the course of the pathology in infants should differ so much from what is ordinarily seen in adults. Recently a very practical division of pulmonary tuberculosis was proposed by the well known authorities Petrusky and Ranky. These men suggested a division into primary, secondary and tertiary stages. A study of the different pathological processes of these stages is essential to the proper interpretation of the x-ray findings.

Due to the work of Ghon and Erdheim, it has been definitely established that in at least 80% of the cases the primary lesion is due to a bronchogenic infection by means of inhaled droplets. The most common location is in the periphery of the right middle or lower lobe. It must not be forgotten however, that this primary lesion called Ghon's focus may be found anywhere in the lungs. Puhl and Koch explain the peripheral predilection because these areas are more

aerated and thus more exposed to infected droplets.

After the tubercle bacilli reach the destined acini, they cause a reaction which really amounts to a miniature tuberculous pneumonia. This stage of exudation is usually missed in the x-ray and may be too small to be detected at autopsy. Later follows the stage of infiltration with the gathering of lymphocytes, and only then does the x-ray begin to show some hazy, indefinite shadows. After this comes the stage of necrosis and caseation with its still deeper x-ray shadows; and still later the stage of calcium deposition and reparative changes. As time goes on the shadow becomes more dense, smoother, smaller, and more acutely outlined in the x-ray due to the

can be seen. Later, when infiltration and caseation set in, the process is visualized and can then be followed to complete healing or to the secondary stage.

The advent of the secondary stage and its many different forms ushers in the difficulties in the differential diagnosis of tuberculosis in children. The secondary pathology results from the spread of infective material in the original focus in the lungs or from the originally infected gland in the hilum. Thus there are two types of secondary pathology, the caseating pneumonia of infants in the first year and the glandular tuberculosis seen in older children. Caseating pneumonia of infants of the first year results from rupture of a gland or lung focus into a



Fig. 1.

Note the sharply outlined round dense Ghon's focus in the right middle lung area and the associated calcified hilum glands.

absorption of the exudate and the lymphocytes surrounding the calcium.

As with infections elsewhere in the body, so in the lungs the lymphatic channels and the glands draining the infected area become secondarily involved. And here too, the course runs through the stages mentioned above, thus, exudation, infiltration, caseation, calcium deposition, and absorption.

Depending upon the virulence of the infection, the resistance of the body, and the stage of the infection of the primary focus, the x-ray will show variable findings which can be interpreted correctly only by one familiar with the course of the pathology as mentioned above. Very early during the exudative stage, nothing

Fig. 2.

Hilum Tuberculosis

Note the enlarged hilum glands, the intrapleural line, and the triangular pulmonary consolidation.

bronchus or vein. The bronchus is the more frequently affected and leads to the disseminated caseous pneumonia with cavitation. This is always fatal. When the vein is eroded the tubercle bacilli are spread throughout the body causing miliary tuberculosis. If the secondary spread takes place in a child after the first year and up to puberty, the glandular type is apt to predominate. Here the glands of the hilum become secondarily involved from the originally infected gland, and both the symptom complex and the x-ray findings are entirely changed. The film now shows the typically enlarged mediastinum with the convex contours of the enlarged glands—the right side being more commonly enlarged.

There is one type of secondary pathology

which seems to hold a place midway between the glandular and pneumonic types of tuberculosis. This is the so-called hilum tuberculosis, what the Germans call the intrapulmonary hilum tubercuosis and what the French call the "primitive triangle." The x-ray is typical and on close study shows three findings, thus: the enlarged hilum glands, a triangular shaped consolidation of varying size with base to hilum and apex to periphery, and the intrapleural line. These findings can be easily made out in the accompanying photograph. There is still considerable discussion as to the exact explanation of these findings, but there seems very little doubt that it indicates tuberculosis.

Still another atypical type of tuberculosis in children is that called epituberculosis. It was first noted by Eliasberg and Newland in 1920. In this type the x-ray shows a lobar consolidation which gradually clears up after several months leaving only enlarged bronchial glands. It is found in children with exudative diathesis and apparently is a marked exudation around a small primary focus, all of which is gradually absorbed.

The tertiary stage is that type seen in adults and does not concern us in our present discussion.

Conclusions:

1. A proper interpretation of the clinical and x-ray findings in tuberculosis of infants and children is impossible without a clear understanding of the pathological processes.
2. The generalized acceptance of the division of tuberculous pathology into primary, secondary, and tertiary stages, would aid considerably in clarifying our ideas.
3. X-ray findings vary considerably depending upon the particular stage of the disease.
4. Cavity formation is frequent in infants of the first year.
5. Close cooperation between the roentgenologist and the clinician is often necessary in difficult cases which present themselves for differential diagnosis.

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OBSTRUCTION OF THE COLON BY POST-OPERATIVE ADHESIONS*

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Reports in the literature concerning obstruction of the colon by adhesions are meager. Many obscure abdominal complaints are explained to patients on the basis of adhesions. This diagnosis may often serve as a cloak for incomplete study or may be a defensive mechanism on the part of the physician in handling a neurasthenic patient. Surgeons of large experience have laid down the dictum that unless adhesions are producing obstruction they should not be disturbed. We have found this a good policy to follow in general diagnostic considerations and at the operating table. No one will deny, however, that adhesions, congenital in origin, secondary to intra-abdominal inflammatory conditions, or following operation may produce distressing symptoms and at times obstruction. Most of these involve the small bowel and a very great preponderance of them are post-operative.

Brugh¹ reports finding stenosis of the sigmoid from adhesions with distension of the ascending and transverse colon during operation for performing duodenal ulcer. This was probably secondary to previous abdominal inflammation.

Collins² reported finding at operation in several instances adhesions binding the transverse to the ascending colon and cecum producing angulation at the hepatic flexure and in the transverse colon. He applied the term "water trap" to this condition. Previous or present cholecystitis, appendicitis, or other abdominal inflammations seemed the etiological factor in these cases. He also reported finding post-operative adhesions binding the transverse to the ascending colon in one instance but the terminal ileum was also involved which may have largely accounted for the symptoms of obstruction.

We wish to make four case reports; one that we consider to have been volvulus of the sigmoid occurring postoperatively producing complete ob-

*From the Central Clinic, Davenport, Iowa. Read before the Association of Resident and ex-Resident Physicians of the Mayo Clinic, Rochester, Minn., October 8, 1929.

struction; one illustrating the production of the "water trap" situation described by Collins² due to previous intra-abdominal inflammation causing intermittent stoppage; one where post-operative adhesions held the terminal third of the transverse colon tightly to the upper end of a previous right rectus incision with marked constriction; and one where adhesions caused almost complete obstruction at the hepatic flexure following cholecystectomy.

1. Mrs. J. S., aged 44 years, had been operated upon five weeks previous to our first observation of her. The gall bladder with several stones and the appendix had been removed. She had been told on previous occasions during several years that her symptoms were due to gall stones. A few days before operation a plain roentgenogram showed calculi which for some reason the attending physician believed to be renal stones. A surgeon from a distant city made a lumbar exploration with the understanding that the gall bladder would be explored through an anterior incision if no stones were found in the kidney. This was done and the double procedure may have been a factor in her prolonged convalescence and marked debility. Many neurasthenic symptoms secondary to the menopause were present.

During the absence of the nurse she rose from the bed and presumably attempted to cross the room and was found a few minutes later on the floor. She and the nurse both stated that abdominal distension began at once and was definitely observed to ascend along the left abdomen, across to the right and soon became general. One of us (P. A. W.) saw her in a merely incidental manner, being in the hospital for another consultation five days after this episode. It was generally conceded by all in attendance that she would expire that night. The distension was extreme, with every evidence of impending collapse—clammy skin, thready pulse and marked prostration.

Exploration was advised and left lower rectus incision made under local anesthesia. The portion of the descending colon visualized was enormously distended, being 8-10 inches in diameter. Fearing to manipulate it in any way or even to insert a hand for exploration, a trocar was inserted releasing a rush of gas and collapsing the bowel. The trocar was removed and a catheter inserted, held in place by a purse string of silk. The edge of the peritoneum was sutured about a knuckle of the bowel and the wound closed with an additional Penrose drain down to the peritoneum. A few days later the wound fell apart and bowel contents bathed it freely. However, the bowels soon began to move normally and there was no further complication in convalescence. A small fecal fistula was closed by burying a radium needle in it two years later.

2. Dr. A. S., dentist, aged 44 years, was operated upon by us Sept. 26, 1929, under the diagnosis of acute appendicitis. He had a severe attack of right abdominal pain during the previous night, vomited several times, ate no breakfast or lunch and came to our office at 2:00

P. M. He described his pain as covering the upper and right portion of the abdomen. His tenderness was rather diffuse on the right side. There were no urinary symptoms and urine examination was negative. Blood count showed 24,000 leucocytes. The temperature was 102°. Physical examination in other respects was negative. He had taken a cathartic and two or three enemas so his preparation for a plain x-ray film was fair but it showed nothing. He had experienced several similar attacks during the previous two years and often had distressing attacks of flatulence after meals, considerable distension between meals or at night. The former were relieved by vomiting, the latter by enemas.

At operation, a long atrophic moderately inflamed appendix covered with adhesions was found and removed. This seemed insufficient to account for the symptoms presented. Further exploration showed marked inflammatory reaction along the ascending colon which was covered with a veil of adhesions. On separating them the transverse colon was found bound tightly to the ascending colon down to the cecum and up to the hepatic flexure with sharp angulation at the latter point, and in the transverse colon near the cecum. The adhesions were cut and tied, raw areas covered and the parts separated up to the hepatic flexure. He feels no more flatulence or cramping after meals and his recovery has been uneventful.

3. Miss A. S., aged 29 years, spent two years in a nurse's training school a few years ago, was a morphine addict, and presented herself for consideration of a post-operative abdominal sinus, April 20, 1929. She had an appendectomy in 1923 and an exploration for partial bowel obstruction in November, 1927, both elsewhere. The surgeon performing the last operation stated to us that he found nothing but a few post-operative adhesions.

Physical examination was negative. Blood, urine and Wassermann were negative, as was x-ray of the chest. X-ray examination of the colon, which might have been illuminating in the light of subsequent findings, was not done. There was an abdominal scar in the right rectus region about equally above and below the umbilicus. Leading from the lower end of the incision, three inches below the umbilicus a sinus extended across the abdomen to the left for four inches and presented a second opening. Probing showed no intra-abdominal communication and bismuth injection with roentgenogram showed it to be superficial with no ramifications. She had had some gaseous eructations but no bloating. In July, 1928, nine months after the last operation, the scar became reddened, then drained but healed in two weeks. In September, 1928, and February, 1929, this process was repeated and the sinus had not healed since the last drainage.

On May 9, 1929, the sinus tract was excised. It was entirely in the fat and well above the fascia, running subcutaneously. She did well for several days after the operation when distension occurred followed by vomiting unrelieved by enemas or gastric lavage. May 16, 1929, the abdomen was opened through the old right rectus incision. The right two-thirds of the transverse

colon, the ascending colon and two meters of the ileum were distended. Examination revealed the descending colon and sigmoid collapsed. The transverse colon was enmeshed in a mass formed by the gastro-colic and great omentum. This mass was adherent to the upper angle of the old wound in such a way as to make an angulation and half twist of the transverse colon. Freeing of the adhesions was followed by collapse of the proximal bowel areas. Her recovery was uneventful and her subsequent course has been normal except for persistence of a sinus in lower angle of the wound. This failed to heal after two months and we believed its cause to be factitial. She has been operated upon elsewhere for this condition.

4. Mrs. J. B. C., aged 34 years, was operated upon by us July 1, 1927, when cholecystectomy and appendectomy were done. The appendix was subacutely inflamed, the gall bladder thick-walled with no stones but adherent to the duodenum throughout its length. Recovery was without incident. She was seen after an interval of eight months, March, 1928, regarding a sore throat with no other complaints. On the night of December 19, 1929, seventeen months after her operation she was observed in an attack of acute abdominal pain with distension, vomiting, and diffuse tenderness more pronounced along the right side. She told of having had increasing constipation, recurring cramp-like seizures, and abdominal distension during the past three months. These symptoms were less pronounced at times and worse at other times. They had culminated in this attack which had continued with increasing intensity throughout the day.

The pain, while constant, was intensified in intermittent cramp-like seizures which were unrelieved by repeated injections of morphine. A hollow gurgling sound with a metallic tinkle and rush of gas characteristic of bowel obstruction could be heard over the abdomen with the stethoscope. Immediate operation was insisted upon but refused. She continued with considerable pain and distension for three days but was gradually relieved. Considerable blood was passed in the stools on the second and third days.

Nine days later, December 28, she experienced another attack of pain but this was located in the right lumbar region, radiating along the right iliac fossa into the thigh. Pus, blood, and bacteria were found in the urine. Temperature was 101°, white blood cells 13,000. Cystoscopic examination revealed pus, blood, and colon bacilli in the right kidney specimen. The urine from the left side was clear. The catheter remained in the right kidney pelvis twenty-four hours for drainage, being irrigated every three hours with boric solution while mercurochrome was instilled at eight-hour intervals. The kidney infection subsided and the urine gradually became normal during the next month. March 27, 1929, over three months after the first seizure, the patient experienced another attack of pain with distension and vomiting, not as severe as formerly but enough to convince her that operation was necessary.

Operation March 28, 1929, through the former right rectus incision disclosed a dilated ascending colon and

cecum and collapsed transverse colon. A band of adhesions slightly proximal to the hepatic flexure extended across the top and around to the under side of the colon arising deep in the liver fossa. As these contracted the colon was gradually rolled upward and outward then downward compressing it into the old gall bladder bed making an angulation with almost complete obstruction. Cutting this band freed the bowel and its contents. The patient has had no further trouble. The acute pyelitis with colon bacillus infection developing in the right kidney immediately after the first severe obstruction at the hepatic flexure was of especial interest.

Summary: 1. The colon is rarely obstructed by adhesions. Congenital bands, intra-abdominal inflammation, and post-operative adhesions may cause partial or complete obstruction.

2. Great caution should be observed in attributing obscure abdominal symptoms to adhesions. Patients grasp this diagnosis readily and may be led into much meddlesome unnecessary surgery.

3. Four case reports are made: 1, obstructing volculus of the sigmoid; 2, obstruction of the transverse colon by adhesions secondary to inflammation in other abdominal organs; 3, two cases of obstruction of the colon by post-operative adhesions. In one of the latter cases acute pyelitis with colon bacillus infection developed in the right kidney following a seizure with obstruction at the hepatic flexure.

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MODERN THERAPY OF CORNEAL INFECTIONS*†

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The most important step in the treatment of corneal infections is, of course, their prevention. There can be no doubt that 80% of severe corneal infections could be prevented by attention to only two things. These are the proper care of foreign bodies on the cornea and the cure of chronic infections of the lacrymal sac. It is true that such care is often made impossible by the neglect of patients who do not consult us until

*From the Department of Ophthalmology, Northwestern University Medical School, Chicago.

†Read before the Eye, Ear, Nose and Throat Section of the Illinois Medical Society, May, 1930.

infection is under way, or who refuse to consider having anything done for an old infected sac. Perhaps some of us, however, are a little apt to minimize the danger of infection from such a sac until it has already occurred. We know that nearly all cases of chronic dacryocystitis harbor pneumococci or streptococci in their sacs, and that the slightest injury to the vascular cornea in the presence of these organisms, is apt to develop into a severe serpent ulcer. I believe we should consider such infections as serious as a chronic otitis media and advise our patients to take steps accordingly. For one thing they are much easier to cure than are the chronic running ears. In some cases, especially in young people, it is worth trying to probe the duct or if this is impossible, to make a new opening into the nose by one or another method. In a larger number however, the only thing to do is to remove the sac, or, following the simple procedure described by my father, Dr. Harold Gifford, destroy its mucous membrane with trichloroacetic acid. Either of these procedures should give practically 100% of good results. Some lachrymation remains, but it is never as severe as when the infection was present. While this will probably prevent 20% of the more severe forms of serpent ulcer, we must remember that the normal conjunctiva is never sterile and that in 5 to 15% of persons, members of the pneumo-streptococcus group are present on the perfectly normal-appearing conjunctiva. Hence a foreign body, besides the bacteria which it may carry in, may open the way for such organisms to invade the cornea. The type of foreign body which most often carries infection into the cornea is a fragment of wood, stone or dirt, while metallic foreign bodies or cinders, usually sterile themselves, leave small areas of necrosis which are perfectly adapted for the growth of conjunctival organisms.

In removing foreign bodies, good anesthesia is essential, and 2% butyn or holocaine will secure this without damage to the corneal epithelium. The foreign body should be lifted out of its bed by a sterile spud which is not too sharp. It should be completely removed with the minimum of traumatism to the cornea, for which good light and a binocular loupe are often necessary. The conjunctival sac should be washed well with boric

acid and a few drops of a somewhat stronger antiseptic, such as 2% mercurochrome, should be instilled. I believe it is important then to always prescribe a mild collyrium such as a saturated solution of boric acid, to use frequently during the next 2 days after a foreign body has been removed, if the corneal epithelium has been broken, to minimize the chances of infection. As in such cases there is nearly always some pain for several hours, the addition of 2 grains of butyn per ounce to the drops is appreciated by the patient. We should really see every patient who has had an imbedded foreign body removed on the following day. This is the only rule which will absolutely protect the patient from the development of a corneal infection without the surgeon's knowledge. It is a hard rule to get patients to observe, however, since at least 90% feel perfectly well the next day and will not be bothered by a visit to the doctor. I believe we are almost safe if we advise such patients to report if they have the slightest discomfort after 24 hours. The wound of a foreign body should always be healed by this time, and persistent discomfort usually means either the retention of some foreign material or a beginning infection, which may occur from the conjunctival sac after complete and impeccable removal of a foreign body.

The signs of infection will be congestion, pain, and a very small point of grey or yellowish infiltration. When this is present, it should be touched at once with a strong antiseptic. We all have our favorite, some preferring phenol, some nitric acid, some iodine. I prefer trichloroacetic acid in most cases, and for two reasons. It leaves a white spot wherever it has touched, so that one always knows whether a satisfactory application has been made. It destroys bacteria and tissue within a very short distance of where it is applied, having no tendency to produce deep necrosis, as phenol or nitric acid may do. I use the pure crystals, to which one or two drops of water have been added so as to produce a thin syrup which is easy to apply. A convenient way to apply it is on a wisp of cotton wound on a pointed applicator and cut off to form a fine point. This should be tried on a finger nail to be sure an excess of acid is not present. If the infiltrate is deep or covered by soft exudate, a

hard applicator must be made, by winding a very small wisp of cotton tightly around a sharp pointed applicator.

If the infiltrate has been developing for several days when the patient is first seen, there will usually be considerable pain and congestion. In this case atropine and hot packs should be used from the beginning as for any corneal ulcer. If the condition does not seem severe enough to justify the use of atropine, homatropine may always be used to produce a temporary relief from ciliary spasm.

When we should apply the name serpent ulcer to such a condition is unimportant. Any corneal infiltrate which causes persistent pain and congestion and tends to spread deeply in the cornea contains pathogenic organisms, usually pneumococci or streptococci, and is a severe corneal infection, capable of compromising the entire globe. Such cases should be hospitalized when possible, chiefly so that we may not fail to see them every day. Where one or two applications such as above described have been made, and the infiltrate continues to spread, we must not hesitate to use more heroic measures. I believe non-specific protein therapy will help us here in many cases. None of the milk preparations such as Aolan or Lactigen have given consistent reactions in my hands. If pasteurized milk is used, the bacterial content is apt to be so low that only slight reaction is produced, but if such milk is kept warm for several hours and then boiled 4 minutes, a good febrile reaction is often obtained. A typhoid vaccine, 30 to 60 million organisms given intra-venously, produces the most dependable reaction.

We may also vary our local antiseptic treatment, first by making it more thorough, getting well into the bottom and edges of the ulcer with a sharp hard applicator and second by changing the antiseptic. Tincture of iodine is very hard to apply but when made into a thick saturated syrup of iodine it is easy to apply and sometimes very effective. This is done by adding 5 drops of the tincture of iodine and 5 drops of glycerine to 10 grains of iodine crystals. Such a syrup may be applied very thoroughly to an ulcer, twice a day if necessary, without danger, although severe pain is often complained of following the treatments. Such applications should be made

at least once a day and accompanied by plenty of atropine and hot packs.

In a large number of cases these measures will prove successful, especially if the infiltrate is seen early, and if so the congestion will decrease, the pupil will dilate easily and the pain will disappear. Any increase of pain or congestion, or the resistance of the pupil to atropine usually means further progress of the infection. In such cases, besides repeating our foreign protein in increased dosage, we must treat the local infection more radically. This is where the actual cautery was, and in some hands, still is used to actually burn away completely the site of infection. This leaves very dense scars, and I believe can be avoided in most cases by prompt enough opening of the anterior chamber. My father, Dr. Harold Gifford, reported on the value of this procedure years ago, and on a method of making the opening which he called delimiting keratotomy. Opening the chamber is done with the idea that removing the aqueous will remove the tension from the avascular cornea, allowing more lymph and antibodies to penetrate it from the limbus. Where the ulcer is small, such an opening may be made from the limbus. Delimiting keratotomy is a cut made with a very sharp thin Graefe knife tangential to the ulcer, along its advancing or central border, and extending beyond the widest part of the ulcer at either end. It is a perfectly safe procedure if done under good illumination with a good fixation of the globe, the knife being held parallel to the surface of the cornea as soon as it has penetrated so as not to wound the lens. Its advantages are that it may be re-opened once or twice a day by simply touching one edge of the wound with any sharp instrument till the chamber empties. The only precaution necessary is a good light so as to be sure that the chamber is not already empty. This re-opening of the chamber should be kept up for 3 to 6 days or longer, until the ulcer shows definite signs of regression. If the wound tends to close too quickly after each reopening of the ulcer or if the ulcer does not stop its progress, it may be necessary to puncture the thinnest part of the ulcer with a fine cautery point as such a round opening will remain open for several days. Whether, as my father thought, the

growth of epithelium into the wound acts as a barrier to infection, or whether it acts purely by the relief of tension, the effect of the procedure on the healing of all but the most advanced ulcers is unmistakable, and will be borne out by anyone who has tried it, or has observed the healing of an ulcer after spontaneous perforation.

Most corneal ulcers which follow injury are, as stated before, serpent ulcers of one degree or another. Of the other types of ulcer the herpetic or dendritic ulcer is probably the most common. This is now known to be caused by the virus of herpes simplex, which causes herpes of the lip and genitalia. While it often occurs during a febrile disease, such as malaria or pneumonia, it often occurs also without any apparent cause, just as herpes of the lip is known to do, or after a slight injury, and we must assume that certain people are carriers of the virus. These ulcers, while not always assuming the characteristic branching dendritic shape, are alike in their tendency to spread superficially over the cornea, without involving the deeper layers, never causing perforation. One or two applications of the iodine syrup just described may abort such an ulcer, if it is seen early. Others are much more obstinate, and may cover practically the whole cornea. In this type of ulcer, I believe delimiting keratotomy is not indicated as it may carry the virus into the deeper layers of the cornea. Paracentesis at the limbus avoids this danger, and would theoretically be of benefit. Since we have been using ultra-violet light, however, it has not been necessary to perform paracentesis. This condition is the one in which most benefit is seen from ultra-violet light, as the layer of opaque cornea is so thin that the short rays can reach the site of infection. In serpent ulcers it is much more difficult to obtain an effect since the rays are absorbed before reaching the deeper layers. I have used the uviol light of Birch-Hirschfeld for 8 to 10 minutes daily in these cases, repeating the treatment daily for 3 to 6 days. With this, there is no danger of damaging the corneal epithelium, while the water-cooled mercury arc lamp, with which much more light can be delivered, must be used with great care, beginning with only 30 seconds and for this special applicators are necessary. With the re-

curing herpetic ulcers, I have seen some apparent benefit from removing pathologic dental roots or infected tonsils, and from cleaning up sinusitis. This may be effective by building up general resistance or it is possible that the virus itself actually lodges in such foci and is removed with them. I have never seen one of these ulcers occur following a foreign protein reaction, but am expecting to as they have been reported to occur occasionally after typhoid vaccine.

Mooren's ulcer, or rodent ulcer, is a rare form of corneal infection. This is fortunate since it nearly always, in spite of treatment, covers the whole cornea. It begins at the limbus and progresses both centrally and around the limbus, healing in one place as it progresses at another. I have seen one of these ulcers heal after a delimiting keratotomy which was kept open for over a week, and another after covering the ulcer with a sliding conjunctival flap. The flap, which was left in place, did not produce too good a cosmetic effect, but good vision was retained. Another form of corneal infection, the treatment for which is almost equally discouraging, is the smallpox infiltrate. These are not so common now as in the pre-vaccination days when they formed one of the most important causes of blindness. I am told this is still the case in some parts of the Orient. This type of lesion usually comes on during the stage of eruption, but instead of clearing up with the skin lesions, it goes on with a sluggish progress through the cornea. The only form of treatment I have seen affect these lesions favorably is keratotomy, the chamber being kept open for one to two entire weeks. I have seen it fail entirely, however, and I believe the most important thing to do on first seeing such a case is to give the prognosis for a long illness, with very doubtful outcome.

In conclusion, I would hope simply to have emphasized to your minds the need of taking every precaution to avoid corneal infections, and to have given you what I consider a reasonable and effective routine of treatment when such infections do occur. They are emergencies of the most urgent kind. In most cases, prompt and energetic action will be rewarded, and in the others it is good to feel that everything in our power has been done.

58 E. Washington Street.

NERVE ANASTOMOSIS FOR THE RELIEF OF FACIAL PARALYSIS

ALFRED BROWN, M. D.

OMAHA, NEBRASKA

It is my purpose to bring before you the results which are possible to obtain in nerve transplantation in paralysis of the facial nerve and to call to your attention particularly the three criteria by which results should be evaluated according to Frazier and Spiller.

First, to bring back tonicity to the muscles and restore normal contour of the face.

Second, to bring back mass motion of the muscles of the face.

Third, to bring back emotional control of facial movement.

Working along these lines, I have selected as the type of transplantation to be used the suture of the proximal stump of the hypoglossal nerve to the distal stump of the facial which has been divided close to the stylomastoid foramen, in order to obviate as much as possible the occurrence of motion in the face imparted by the attempted action of the vital nerve. I have used the descendens hypoglossi which supplies a few muscles in the neck and shoulder, which do not amount to much, to anastomose with the stump of the hypoglossal which has been paralyzed by the operative procedure in order to restore motion to the tongue and obviate the motion of the face when an effort is made to use the tongue. This has apparently been successful in getting rid of the extraneous associated movements which occur commonly with anastomoses in which other nerves are used.

(Motion pictures to illustrate the points to which attention has been called.)

OSSEOUS DYSTROPHIES*

E. L. JENKINSON, M. D.,
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The very excellent paper by Dr. I. Seth Hirsch, read before the Radiological Society of North America in December, 1928, has done much to clear up some of the obscure points of diagnosis and classification of fibrocystic and allied dis-

eases. Since Hirsch published his very thorough paper, which is a complete review of the literature, much interest in these diseases has been manifested by frequent articles in medical journals. It is evident in the face of these works, I am going to add very little to your fund of information.

I am quite sure that if we review our cases of fibrocystic and osteitis deformans, we will come to the conclusion that it is impossible to classify these patients into frank cases of either disease.

As Kaufman has said fibrocystic and osteitis deformans are anatomically and histologically the same. They are different stages of the same disease.

It has been the desire of many writers in the past to try and find a sign or signs both clinically and roentgenologically that will definitely differentiate these diseases. This fact is borne out by the complicated classification of many writers. Various stages of the diseases are classified as distinct entities, for example, leontiasis ossea.

I think we can all agree that these diseases should be classified under the malacias, such as rickets, osteomalacia, epulis, bone cysts, etc.

The etiology is still a matter of speculation.

Infection has been placed first by many writers as a cause. Others claim heredity plays a big part, or perhaps the most important part in the cause of the diseases, while others are just as emphatic in their arguments that trauma, endocrine disturbance and diet are the causes of these osseous dystrophies. In Vienna following the war, changes were produced in the bones, following starvation, that were certainly suggestive of fibrocystic disease. Hirsch in his article shows quite conclusively that there are familial characteristics in many of his cases. It is not uncommon to find the mother of the patient show peculiar deformities of the face. On radiographic examination definite bony changes are identified which can be classified under the osseous dystrophies. Our experience certainly substantiates Hirsch's belief. Several of our cases have given definite histories of their ancestors having deformities quite like their own. These deformities were recognized by the patient as only a family characteristic. Recently the dysfunction of the parathyroids have been given

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as a cause of fibro-cystic diseases. Much work has been done on blood calcium but in most instances it was found to be within normal limits. Probably more important than blood calcium is the urinary calcium. We are aware that there is considerable speculation regarding what is the normal urinary calcium. In looking over many articles we have decided that somewhere between .33 to .80 grams is the normal daily output of calcium in the urine.

In our work we have found certain changes in urinary calcium, which may be of some value from a diagnostic standpoint.

The work has been carefully directed by Dr. J. L. Miller. Dr. Miller is quite sure the variation in the urinary calcium is of great diagnostic value. In a recent case of osteo-malacia, a female aged 45, with typical x-ray findings, the blood calcium was around 7, which is very low. The urinary calcium in the patient was very high. This was interpreted as meaning the calcium, instead of being deposited as it usually is, in the bone, was being expelled in large amounts in the urine. In other words there was some disturbance in calcium metabolism. On Viosterol this patient has improved clinically, her blood calcium has increased and her urinary calcium decreased. After six or eight weeks she will be examined radiographically and the films compared to determine whether there has been an increase in the deposition of calcium in the bones.

The disturbance of the calcium metabolism cannot be taken as a definite differential diagnostic sign in fibrocystic and osteitis deformans. We have observed patients, showing very dense bones with the blood calcium normal, and the urinary calcium higher than normal, or even normal.

If the findings were of great diagnostic importance in the presence of very dense bone, the urinary calcium should be low. If the fibro-cystic changes predominate the urinary calcium should be high. This however, is not always the case.

On all our cases at St. Luke's we are spending a great deal of time working on these points in ricketts, osteomalosis, fibrocystic and Paget's. Possibly we may find something of definite value in the progress of our work. Recently the literature has contained numerous articles relating to

the calcium and phosphorus metabolism. There have also appeared articles dealing with the parathyroids and their affect on calcium metabolism and finally bone development.

In the February 20, 1930, *Journal & Clinical Investigation*, Baltimore, R. R. Hannon et al, p. 215, and W. Nauer et al p. 229, published articles dealing with osteitis fibrosa cystica, with evidence of hyperactivity of parathyroid. Hannon et al arrived at the conclusions that hyperactivity of the parathyroids was the cause of osteitis fibrosa cystica.

The calcium, phosphorus and nitrogen metabolism in the Hannon et al case were studied by Bauer et al. The patient's negative calcium balance on low calcium diet was markedly increased over that found in normal controls. The increase was due to an increased urinary calcium excretion. The fecal calcium excretion was less than normal. On high calcium diet the urinary calcium was not increased and the patient remained in calcium balance. The calcium abnormalities were unaffected by the removal of two apparently normal parathyroids. Because the pathologic physiology in their case is similar to that in an individual receiving large doses of parathyroid extract, and diametrically opposite to that in a patient with parathyroid tetany, they feel justified in concurring in the diagnosis of hyperparathyroidism. They feel a high phosphorus diet might be more efficacious from a therapeutic standpoint than a high calcium diet. McClellan and Hannon report calcium and phosphorus balances on their case for 154 days. They found an intake of 1 gram of calcium necessary to keep the patient in positive calcium balance. The positive calcium can be increased by increasing the intake. The use of cod liver oil and of quartz lamp produced no benefit. Certain extracts were used, such as thyroid and pituitrin, which increased the amount of calcium retained. Increasing calcium did not increase the urinary calcium but giving thyroid extract caused an increase.

Fecal excretion of calcium increased with the calcium intake and the giving of pituitary extract further increased the fecal output.

The intake or the addition of glandular extracts caused no affect in the urinary phosphorus. Phosphorus in the feces varied with the intake.

A positive phosphorus balance was maintained

well during periods in which there was a definite loss of calcium from the body.

The removal of two parathyroids caused only slight changes in the levels of serum, calcium and phosphorus, and no change in basal metabolism.

Higgins and Sheard (*Am. J. Physiology*, 85 : 299, June, 1928) have shown that checks under light from which vital rays have been removed invariably show a hyperplasia of the parathyroids. There is an abundance of material showing a close relationship between the parathyroid glands and calcium metabolism. The calcium level in the blood can be increased by the injection of active preparations of the hormone of the parathyroids. These preparations are used in the treatment of rickets, which, like fibrocystic and Paget's is a malacia.

The overgrowth of the parathyroids can be overcome by irradiation with ultra violet or by giving cod liver oil. A. F. Morgan and E. A. Garrison (*Journal Biol. Chem.* 85 : 687, February, 1930), found when giving viosterol and parathyroid in combination extremely high concentrations of serum calcium followed. These two agents may act in combination and may be directly interrelated and, as an antirachitic agent, may be efficacious especially in glandular deficiency.

In the *Indian Journal Medical Research*, 17, January, 1930, p. 889, D. C. Wilson and E. Surie (Dietary Factors in Etiology of Osteomalacia) report the findings of 265 cases of osteomalacia (late rickets). They report a consistent lack of vitamin D in the diet of these patients. They also believe want of sunlight plays an important part in the etiology.

Sunlight is a very important source of Vitamin D, especially in the absence of a well balanced diet. Osteomalacia is very prevalent in India, especially in those who observe purdah. The amount of calcium and phosphorus in the diet was usually adequate. Late rickets and osteomalacia were observed in men and boys, not unlike those observed during and following the Great War, due to hunger.

Excessive cereals plays some part in making the condition worse. Fresh food is important to bring about improvement. The addition of sunlight helps greatly.

From our experience, based on many cases, we are of the opinion that patients suffering from osseous dystrophy have had the disease for many years. It is our opinion that the disease starts early in life, usually the fibrocystic type predominating. The long tube bones are most frequently attacked, later the skull, pelvis, spine and ribs may become involved. Frequently the bones of the face are involved and this calls the patient's attention to the disease.

As the disease progresses there will be hyperostitic changes, new bone being found not in a normal systematic manner, but in rather dense bands.

Von Ricklinghausen in 1891, described the disease bearing his name, he also included Paget's disease under the same classification, metaplastic malacias. Even from his description, one would infer he thought the diseases were closely allied and difficult to differentiate—Paget's disease is classified as hyperostitic metaplastic malacia, and osteitis fibrosa as simple metaplastic malacia. The fibrocystic in its early stage, showing a predominance of cystic changes while the Paget's disease shows a predominance of bony deposits. It is rather uncommon to find a patient with only the changes of one type or stage of the disease.

Fibro cystic occurs in early life, while Paget's is chronic and occurs in adult life.

The character and the severity of the symptoms are not constant. Some patients have severe pain while others have no complaints. If there are large cystic areas that press on the periosteum and surrounding tissues, pain usually follows.

We have seen a number of people come to the clinic, where the disease was discovered accidentally on x-ray examination. Probably the most descriptive classification is the one suggested by Garland.

Type in which Porosis predominates.

Generalised—Osteitis Fibrosa Cystica.

{ Multilocular Bone Cysts.

Localised { Epulis.

{ Leontiasis ossea.

Circumscribed { Solitary—Bone cysts.

{ Central Fibromas

Type in which Hyperstosis predominates :

Generalised—Pagets.

Localised—Monosteal Ostitis Deformans.

The classification shows the disease may show two or more types of changes, and also the diseases may be generalized or localized.

The localized changes may cause symptoms and on x-ray examination a definite cystic area be found. The diagnosis may be a localized bone cyst. These patients should always be thoroughly examined and often a generalized fibrocystic disease is discovered. It is always advisable to do a complete Roentgen examination. Cystic changes may be found in the long bones while the skull may show definite hyperostitic changes.

Peculiar distribution of the disease is often encountered which may have some bearing on the cause or etiology of the disease. Often the left half of the pelvis may show extensive hyperostitic changes, while the other half will be normal. The proximal third of the femur on the affected side will be normal while the proximal third of the femur on the normal side of the pelvis will show extensive involvement.

Pathology: The conditions appear to be quite similar and related. They vary only in the matter of degree. The prominent changes have to do with bone resorption and bone apposition followed by bone softening. If bone apposition does not follow bone resorption a porosis follows; later bone reparation follows, the apposition is not in normal order and patchy areas of osteosclerosis and porosis results.

Malignant changes have been reported complicating osseous dystrophies. These changes are not common, as Lewald reported many cases followed over a period of years with only a very small incidence of malignancies developing. We have had one case operated upon and the pathologist reported the lesion as a malignant sarcoma. This patient had been curetted before, possibly the trauma caused malignant changes to follow.

That there is the chance of error in making a diagnosis of sarcoma is concurred in by many writers. The fibroblasts may well be called spindle cells and the osteoblasts called round cells, thereby giving an erroneous diagnosis.

The x-ray findings in osseous dystrophies are of great diagnostic value. The absolute differentiation of the diseases we believe, is impossible and also of no great importance.

A general rule may be applied as follows. In all young patients the bony changes can be called, and usually are, of the porotic type, under this heading are the fibro-cystic changes. The bones, usually the long tube bones, are cystic, showing

areas of rarefaction large and small, circular in outline. The changes are usually located near the metaphysis. The cortex is thinned but intact, except in the presence of fractures, which do occur. The union following fractures is rather slow, but does occur. Often there is very little deformity due to muscle weakness.

Always examine the entire osseous system, especially the tubular bones, pelvis and skull. Porotic changes may be present, while in the skull hyperostitic changes predominate. The diploe is thickened and occasionally the internal table is thickened and irregular. There may be irregular areas of hyperostosis in the bones of the skull, especially the frontal may be eburnated, hence leontiasis ossea.

It is not uncommon to find localized cystic changes in the ends of tubular bones and in the face. As the patient grows older the disease may change and take on hyperostitic changes. The trabeculae become thickened in bundle formation. The cortex becomes thickened and the shaft widened. The widening is especially noticeable in the upper portions of the femora. In the tibia there often develops a marked anterior bowing. The tibia seems to be elongated—occasionally cystic areas are still present and may become large and invade the cortex.

The so-called Paget's changes which occur in the later stages of the disease and during later adult life, show the hyperostitic changes. The trabeculae and the bones become thickened. The shaft becomes widened. The pelvis will show considerable thickening of the bone, not unlike a low grade osteitis. The pelvis is usually deformed, due to the softening which has occurred years before. The x-ray findings are quite typical and there are very few diseases with which they will be confused. Occasionally cancer of prostate will cause metastatic changes which may be suggestive.

DISCUSSION

Dr. C. H. Warfield, Chicago: This has been a very interesting subject because the roentgenologist plays the most important part in the diagnosis of this condition. There are many cases in which the diagnosis is not made since there is no clinical manifestations. If you x-ray the skull and find the typical appearances of osteitis you should x-ray the femur and tibia, since this is a common location of the generalized process. This one case was rather amazing to all because they did not suspect he had it.

INJURIES TO THE SPINE AS RELATED TO ARTHRITIS*

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PEORIA, ILL.

In the consideration of injuries to the back, there is a type of injury other than those involving damage to the bony framework, which, while usually temporary, result in stiff and painful backs with permanent disability of a degree quite disproportionate to the provoking cause, in individuals of a certain type of spine. They result from wrenches and strains, hyperextension or hyperflexion, sometimes from direct trauma. Inasmuch as they belong to the class of injuries from which recovery ensues in a reasonable period of time, special thought or attention is not given to them until a prolonged disability leads to more searching examinations.

X-ray then discloses hypertrophic bone changes of the spine sharpened edges of the bodies, lip-ping, spur formation, and often ankylosis through the fusion of spurs of adjacent bodies or interlocking of spurs: The various degrees of structural bone formation known as hypertrophic arthritis. These bony outgrowths have been present for many years but have not been the source of pain or discomfort until an injury has occurred. Then they never cease to be a source of pain and disability.

I have made an analysis of x-ray plates taken serially in 1928-1929, in which the vertebrae are shown. The plates were taken chiefly for G. I. & G. U. studies, Graham tests and for injuries. Only the plates of those cases were included in which painful backs were not a complaint. The spine findings were incidentally found and were noted casually in the x-ray report, not being germane to the purpose for which the x-ray examinations were made. The analysis was made to determine the incidence of hypertrophic bone changes in relation to age and occupation. 478 x-ray plates of the vertebrae were examined, of which 78 or 16.3% showed symptomless hypertrophic changes of the spine. 202 of the series were women, 25 or 12.5% of whom showed such changes as compared with 53 cases in 276 men, or 19.8%. Of 147 women under the age of 50, 3 or 2.04% showed changes, while in 55 plates of women above the age of 50, there were 22 or

40% with changes. Of 176 plates of men under the age of 50, 14 or 8% had hypertrophic changes, the earliest being at age 34. Beyond the age of 50, 38 or 38% of 100 plates examined showed hypertrophic changes, four only occurring under the age of 40.

The series was classified by occupations, which were divided into two groups—active and sedentary. Those of active occupation included miners, farmers, railway employes, steel workers, machinists, carpenters, chauffeurs and truck drivers. Those of sedentary occupation were chiefly clerks and salesmen, business and professional men. Of the latter group of 74 cases but 1 showed hypertrophic changes in the spine.

Of 100 men in the active group below the age of 50, 14% were affected, while of 89 such individuals ranging above 50 years of age, 38 or 42.7% showed spine involvement, while 62.2% of all above the age of 60 were so affected.

Active group—men

age	no. examined	bone changes	per cent
21-30	23	none	...
31-40	68	3	5.5
41-50	65	11	21
51-60	56	15	35.7
61 on	44	23	62.2

Sedentary group 74 1 age 35

The lumbar region was most involved, being affected in 51.4% of the women and 59.4% of the men. The remainder involving the thoracic vertebrae and the pelvis, with occasional cervical involvement.

T. A. Willis (Journal of Bone and Joint Surgery, April, 1924) analyzed the hypertrophic changes found in the examination of 628 skeletons. The hypertrophies became manifest after the age of 35, appeared earlier and most marked in the spines of heavy individuals, and were present in almost all of the skeletons examined after the age of 50. (120 out of 123.)

J. D. Garvin (Archives of Surgery, July 1927) made a study of the hypertrophic changes of lumbar vertebrae disclosed in the plates made for examinations of the genito-urinary tract, at the Mayo Clinic. The spines of 67% of the men and 40% of the women above the age of 50 were affected, about 30% of whom experienced back manifestations while 74% of the men and 61% of the women having such backs had no symptoms referable to them.

In general, it is evident that chronic hypertrophic bone growth occurs in the spines of a large proportion of all individuals, particularly

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in those engaged in occupations requiring much muscular effort, occurring first around 35 years of age, developing progressively and becoming more marked with advancing age and involving chiefly the lumbar region. While these bone changes are designated hypertrophic arthritis, it is debatable whether the presence of symptomless hypertrophic bone growth constitutes an arthritis; whether a painless back is to be designated as rheumatism by reason of x-ray findings. Arthritis is a disease, not something seen in x-ray plates.

Focal infections are factors in the production of arthritis, and foci of infection are prevalent centering around the teeth commonly, in most of the group of affected individuals. The marked preference for these changes in older individuals of active occupation in contrast to their lesser incidence in men of sedentary occupation is too striking to be explained on the basis of infectious arthritis. While focal infections as factors cannot be excluded, the changes are largely physiological hypertrophies of definite relation to age and occupation, a response to the habitual activities of the affected individual. Muscular and ligamentous stress and strain over long periods of time are major factors in their production.

George and Leonard (Radiology, 1924) characterized them as "Chronological Occupational and Postural changes." "The vertebra change in appearance with advancing age, particularly in the laboring man who does heavy lifting. His vertebrae will differ in appearance from that of sedentary occupation. These changes are many times confused with those due to injury or disease. They are normal in relation to age, occupation and posture of the individual."

However, the question whether these are pathological changes — arthritis, or are physiological work hypertrophy is largely of academic interest, except that, particularly in compensation cases. The term arthritis should be reserved for those who show clinical evidence of rheumatism before injuries have been incurred. Moreover, it should be recognized that lipping, spur formation and the like require years for their formation and that they are not the result of a single recent injury. The changes occur along the edges of the vertebrae and follow the attachments and course of ligaments which become sclerosed and calci-

fied paralleling in age sequence the sclerosis and calcification of the arteries of the individual.

With advancing age and progressing sclerosis of bone and ligaments, diminished mobility and flexibility of the back appears. The lessened mobility of such a back coupled with its increased brittleness, increase its vulnerability to strains that force it beyond its limited range of motion. The important significance attached to such backs is, 1st—their susceptibility to injury —particularly from relatively slight trauma, and 2nd—the extent and duration of disability which is quite disproportionate to the cause. The greatest mobility of the spine is in the lumbar region and the lumbar region receives the greatest strain in muscular effort. Here, therefore, the hypertrophic changes are most frequent and here also the incidence of injury is greatest. The trauma are of three types: 1st—muscular and ligamentous strain in a back of limited mobility by reason of bony over-growth; 2nd — hyperextension and hyperflexion of such a back and less frequently, a direct trauma to a back the seat of these structural changes.

Bohart (Journal A. M. A. Vol. No. 92) X-rays the spine of all men before employment and considers that lipping and spur formation seem to be a sure indication that the individual will work but a short time until some sudden strain will produce a lumbago. A spine with sclerosis and calcified ligaments and bony changes at the edges of the vertebrae, limiting motion, or so engaging as to lock and dovetail each other, is obviously more easily injured than a spine that does not have such changes. It is structurally fragile and a potential source of injury with prolonged disability. The important thing in dealing with these injuries is to determine early whether they occur in individuals whose spines are the seat of such structural age and occupation changes. If not, recovery in a reasonable time can be expected to ensue; on the other hand, if the structural age changes are present it is essential that they be recognized at once as with ordinary methods of treatment — strapping of the back and ambulatory treatment, they become progressively worse and the individual gradually develops a permanent disability with a stiff and painful back. Certainly apparently minor injuries of the back occurring after 40 years of age should be subject to x-ray examination, that apart from the matter of injury of the bony

framework, the presence of physiological work hypertrophy may be determined.

Injuries involving the bony framework are recognized as serious lesions and are treated accordingly with immobilization etc., and good results are the rule. An unrecognized and untreated compression fracture will result in a chronic painful and disabling back. The results that follow the casual and indifferent methods of treatment of the type of spine under consideration are comparable to those that follow similar lines of treatment applied to compression fracture. A compression fracture well treated yields better results than these lesser injuries with inadequate treatment.

Early immobilization after injuries of backs showing structural changes, in the same manner that compression fractures are treated and over a long period of time may lessen the severity and permanence of the disability. It is therefore essential that they be x-rayed immediately that they may be identified, as late treatment is ineffectual. However, even when early and adequate immobilization is applied many of these individuals do not fully recover the use of the back. In long standing cases of painful backs of this class with the prospect of permanence of disability, fixation operations designed to cause bony ankylosis of the affected vertebrae, will alleviate the manifestations and may enable the individual to perform some kind of light work.

CASE REPORTS

1. A railroad man, aged 52, was standing on step on front end of switch-engine. The step caught on a projecting plank at a crossing and was bent downward sliding him off in the path of the on-coming engine. He threw himself sideways to save himself from being run over and sustained a wrench of the back involving the lumbar region. He complained immediately of pain and was confined to the bed for six weeks. Pain persisted on movement thereafter and he has not worked since receipt of the injury five years ago. He received a substantial verdict from the Company on account of permanent disability. The x-ray discloses changes involving the 2nd to 5th lumbar vertebrae. Lipping of lower margin of 2nd, flattening of the body of the 3rd with increased concavity of the sides of the body with a sharpened edge on one side and spur formation on the opposite side of upper margin. There is some involvement of the 4th. The localization of pain in the lower lumbar region coincides with the bone changes.

2. A farmer aged 70, while lifting a box of firewood, felt a sharp pain in the back which persisted, becoming progressively worse, causing complete disability. He

did no work thereafter, lived three years and died of pneumonia a few months ago. X-ray showed spur formation on the adjacent margin of the 2nd and 3rd on one side and the adjacent margins of the 4th and 5th of the opposite side, there are hypertrophic changes in the sacro-iliac articulations. Spur formation reaching out toward each other from adjacent bodies is a common characteristic of chronological age changes in individuals engaged in heavy work. They following the course of the ligaments, often meeting and fusing, and result in complete stiffness of the affected bodies. Lateral view of the vertebrae show changes corresponding to those in the A & P plates. The change involves the entire rims of the margins, not alone the part seen in one plate.

3. On October 23, 1929, a telegraph lineman, aged 45, was standing in the caboose of a freight car. The train came to a sudden stop and he was thrown backward against a stove in sharp hyperextension. He experienced some pain which lasted a short time, thereafter he experienced pain on movement or exertion but continued working. The pain became progressively worse and after six weeks he was obliged to give up work for a few days and worked intermittently until Feb. 1, 1930. He then complained of constant dull aching pain in the lumbar region aggravated by movement. Tenderness to pressure was present over 4th and 5th lumbar spines and lumbo-sacral articulation with muscular rigidity. Motion was limited on account of pain. No foci of infection were found. He was immobilized by a body cast for six weeks after which a brace was fitted. Pain subsided ten days after immobilization but he experienced occasional dull pain occurring spontaneously and if the brace was not worn, pain was present on movement. This gradually subsided, and he has returned to work after seven months' treatment.

X-ray plates: All the various gradations of work hypertrophies are seen in the plates of this case, all the vertebrae are involved. Flattening of the body of the 3rd, increased concavity of the sides and spurs reaching out for the adjacent side of the 3rd and 4th toward each other.

4. A miner, aged 59, was bending over. A gate descended upon him, he threw up his right hand to support the heavy gate and protect his back, twisting himself sideways, and felt a sudden crack and pain in his back. He worked a few days and gave up, has not worked for two years on account of persistent painful back and is receiving compensation for total disability. The wrench was received with the back unprepared and unfortified. In itself the wrench was not severe. Occurring in a back, the seat of hypertrophic changes, permanent disability results. The third vertebra is flattened. The flattening affects the body of the 3rd lumbar vertebra first, and more frequently than the others.

5. A farmer, aged 62, was walking through a railway station. He stepped down a step which he did not see in a dimly lighted hall and fell wrenching his back. He has had a painful back since then. The case is in

litigation. This is a typical senile back. In addition to the various hypertrophic changes the bones have an irregular moth eaten appearance instead of being of uniform density. The articular facet of one side of the 4th is extensively eroded with small spines extending from its margin as well as from the margin of the bodies. 4th and 5th bodies are fused.

These cases are typical instances of the disability occurring in backs that are the seat of chronological and occupational bone changes; in none of them was pain experienced prior to receipt of injury. In each instance the disability was caused by physical strain or a wrench not in itself excessive, but sufficient to cause permanent disability in a structurally vulnerable back. Vertebrae that are the seat of arthritis with similar bone changes will be equally vulnerable to the lesser injuries and equally prolonged disabilities will result. However, a chronic hypertrophic arthritis gives a warning of its presence by reason of pain antedating injury. The individual with a painful arthritis of the back will protect his back, while the workmen with a symptomless work hypertrophy will subject himself to strain, not excessive per se, but causing permanent damage in his particular type of back. About 70% of hypertrophic spines are painless according to the statistics of Garvin. The incidence of injuries will be relatively greater in this group than in the remainder that has pain associated with the hypertrophic changes, that is, in the true arthritis.

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DISCUSSION

Dr. John R. Harger, Chicago: This has been a very interesting discussion, and I think we are very much indebted to Dr. Miller for bringing this to our attention. I am glad Dr. Miller took little or no time in discussing the etiology of this situation because it has been described so frequently. The interesting and important things which Dr. Miller has brought out should dwell long in the minds of all of us.

I have not before learned to associate trauma and the ordinary spine changes which Dr. Miller has brought out, but his observation shows definitely that

these spine changes are more common in the individuals who are subjected to severe strain and those doing heavy work than those living a sedentary life. In other words, we should not suffer from those changes unless we play golf too hard or do some of the handball stunts. We should go along through life without these changes while the fellow handling the pick and shovel is sure to have them.

Another interesting feature brought out by Dr. Miller was, as we have seen in our own work from time to time, that practically all lumbar cases do not complain of the pain, even though the x-ray picture will show the changes. That has been my experience.

The fact that these people are so much more subject to injury has brought forward another great field. In surgery, especially in industrial surgery, it behooves the x-ray man to make more careful examinations of the x-ray plates he takes and make a more careful interpretation of the findings. Dr. Miller will bear me out in this statement that roentgenologists have gone to the courts and sworn that certain changes in the spine were due to the recent injury, when as a matter of fact they were there long before the injury.

Dr. Cushway has done remarkable work along this line and has shown a distinct advantage of taking an x-ray of spines of individuals who are applying for employment in the larger industries where they are subjected to trauma. In fact, I think he has shown in his work that he has saved his company many thousands of dollars in claims by having a picture of the individual's spine before he starts to work.

In the County Hospital in Chicago we have a very large number of hernia cases that are forced in there today by the larger employment organizations, because they have learned to know what a handicap it is to have a man in their employment if he has a hernia. If a man seeking employment has the least sign of a hernia he will not be hired. It looks to me like that is another point that is going to catch these poor fellows who are looking for employment, because these big industries are going to x-ray the spine of every man they employ.

A CONSIDERATION OF NON-OBSTRUCTIVE ANURIA, WITH REPORT OF TWO CASES*

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The subject of non-obstructive anuria, i. e., that in which there is some interference with the secretional functioning of the kidney, a suppression, not a retention of urine, by some factor originating outside of the kidney itself, is one which has not received as much attention from urologists as it deserves: and although individual case reports are numerous enough, there are

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but comparatively few papers dealing with the general subject in the literature.

As mentioned by Caulk,¹ Ambrose Dawson,² in 1759 reported the very curious case of a female who for 15 months did not pass a drop of urine; there were neither sweats nor any uriferous odor. After this length suppression she again voided urine. There are several cases of a similar kind but of shorter duration in the literature and the explanation on their occurrence is by no means satisfactory.

Fowler³ in 1801, published a fairly exhaustive monograph on the subject of non-obstructive anuria, collecting a number of such cases from the literature; these included 14 cases following acute and chronic infections, 8 cases following poisoning (7 corrosive sublimate poisoning), 2 cases due to occlusion of the renal artery, and cases of hysteric and traumatic anuria. Cases of hysteric anuria have been known in literature for some hundred of years back.

Suppression of Urine Secretion by Extra-Renal Causes. Assuming there is no anatomic or disease factor present in the urine secretory apparatus itself, it is obvious that this function might be suppressed in several ways, and that such a suppression of activity may, according to duration, result in an anuria of greater or lesser severity. A change in the cerebral center governing the nerve supply to the kidney might cause a cessation of secretional activity; any interference with the blood supply to the healthy kidney if sufficient might cut off its nourishment and stop its physiologic functioning; a severe traumatism to the kidney such as external contusion, might perhaps also stop its functioning and cause anuria. Again a non-obstructive anuria in the sense in which I wish to be understood, may either be a real suppression of the function of urine secretion by actual functional stoppage of the glomerular and tubular activities within the kidney, or it may be of the nature of a mechanical hindrance to their functioning by some factor originating extrinsically as regards the kidney itself, and without the inherent power of the secretory apparatus to secrete urine being lost. This is different from mere urinary retention by some mechanical obstruction such as calculi in the kidney pelvis or ureter, but it does include such a cause as plugging of the uriniferous tubules with hemo-

globin deposits, as I shall later refer to. We must, therefore, in speaking of non-obstructive anurias distinguish between a mechanical obstruction within the kidney not due to kidney disease which suppresses or inhibits urine secretion, and a mechanical obstruction below the kidney and independent of it, which prevents the flow of urine. In the nomenclature "non-obstructive anuria" the word obstructive refers to extra-renal mechanical obstruction.

Anurias of the first or suppressional type are what Randall⁴ terms pre-renal anurias "where functions behind and beyond the true urinary apparatus are the factors at fault," and to be distinguished from renal anuria where the secretion tissues have suffered insult and have ceased to perform their functions.

Anuria of Nervous Origin. In regard to anuria originating from some cerebral disturbance it is well known that a derangement of the cerebral center governing kidney urine secretion or its nervous connections may cause a failure of this function. The cerebral center referred to is generally assumed to be either in some part of the pituitary body or in its immediate vicinity. Tumors of this region are known to affect the amount of urine secretion and in diabetes insipidus there is usually an anatomic disturbance of this cerebral center.

Anuria due to vascular spasm may be placed in this type. Eisendrath⁵ reported a case of non-obstructive anuria (without evident lesion) in which the ureteral catheterization alone relieved a spasm of the renal vessels probably the result of stimulation of the splanchnic nerves. There are other instances in the literature in which vascular spasm was causative of anuria.

So-called hysterical anurias should also be classed here as well as those anurias termed reflex, i. e., cessation of the functioning of healthy kidney following some traumatism operative or other to its mate. I do not wish to discuss this type of anuria concerning which there is already a large literature; I agree with the opinion expressed by Randall that if such a type of anuria is a reality it can only be a nervous phenomenon and may explain cases which have followed surgical operations without shock.

It is doubtful if injuries to the spinal cord can cause a true anuria. The cases of so-called traumatic anuria of this type reported in the

literature are almost always retention of urine due to paralysis of the bladder muscles rather than anuria. Avezza's⁶ case of peridural intraspinal abscess and Francois'⁷ two cases accompanying spina bifida were retention cases, but the case reported by Hyman is doubtful. Hyman's⁸ case was that of a boy who was twice under anesthesia for traumatic fracture of both femurs. Nine days after the second anesthesia there was a massive hematuria followed by complete anuria. Of course, this may have been a case of low blood pressure anuria, such as will be referred to later. Cases of anuria following lumbo-pelvic traumatism reported in the literature may be classed as doubtful. Many cases of retention of urine following spinal and other injuries are incorrectly spoken of as anurias which they are not.

Anurias due to changes in Blood Supply to the Kidney. Coming to the second general underlying cause which might be concerned in creating a state of true anuria, i. e., interference with the blood supply of the kidney, this may be considered from the points of view either of a change in the actual amount of blood supplied to the kidney, to some change in the blood vessels or to some change in the nature or composition of the blood. We must also bear in mind that a change in the blood supply within the kidney effects its nerve supply, which may aid in causing ischemia.

In regard to the blood supply to the kidney, Randall says that a certain pressure in the afferent renal vessels (60 mm. Hg.) is essential for urinary secretion to take place and that lower figures are accompanied by anuria. The pressure at which the blood enters the kidney is, therefore, of very great importance. Normally glomerular pressure is about 90 mm.; that is, about 30 to 40 mm. below normal blood pressure. Richards and Plant⁹ also state that from recent studies it would appear that the secretion of urine depends to a large extent on the blood pressure in the renal vessels.

An occlusion stricture or compression on the renal artery or renal vein affecting the glomerular pressure would naturally tend toward ischemia and anuria. Pederson¹⁰ cites two cases of non-obstructive anuria in one of which the right renal artery was compressed by the cystic remains of the totally disorganized left kidney;

in the other an aortic aneurism had compressed the artery of a solitary kidney. The case reported by Oudenal and Hulst¹¹ is different in the mode but similar in effect. In this case the abdominal aorta was thrombosed due to an arteriosclerotic process. The thrombus had spread into the renal arteries with almost complete anuria. The experiments of Stoll and Carlson¹² showed that occlusion of the renal artery or of the renal vein induced anuria not only during the period of anemia but also for varying periods following the release of the clamped vessels.

Anuria may result from low blood pressure. Regarding anurias due to low blood pressure, Randall says that a transient anuria accompanies a low blood pressure and that the anurias coincident to major surgical operations fall into this class as due to blood pressure changes.

Mac Nider¹³ says that the anurias occurring in normal animals during anesthesia have been associated with either a low blood pressure or with a depletion of the alkaline reserve of the blood, i. e., an acidosis. Acidosis is usually associated with low blood pressure. Hofrichter¹⁴ refers to acidosis as a cause of uriniferous tubule changes and states that injections of concentrated acids or alkalis into the blood will cause glomerular and tubular changes identical with those in bacterial toxemias.

Anurias Due to Bacterial and Other Toxins in the Blood. One of the ways in which a toxin circulating in the blood, whether of bacterial or other origin, produces an anuria is by a constriction of the capillaries of the glomeruli and its consequent reflexion in the blood supply of the tubules. Hofrichter, who deals with anuria especially from the point of view of the effects of the toxemias arising from infectious diseases upon the blood supply of the tubules and glomeruli, shows that the tubule is dependent for its blood supply upon what amount of blood can pass through the glomerulus, which later is generally conceded to be only a tuft of capillaries having a principal afferent and a principal efferent vessel, this later giving off branches, which are wrapped around the tubule as it emerges from Bowman's capsule. It is therefore easy to understand how degeneration of the epithelium and a consequent failure of the function of reabsorption of glomerular fluids by the tubu-

lar epithelium may result from arterial involvement and a depleted blood supply to the tubule, since anything that affects the supply to the capillary tuft injures the tubule dependent upon it. The capillaries connect the arterioles and venules.

Hofrichter states that in the acute infectious diseases a toxin circulating in the blood comes in contact with the capillaries throughout the body and constricts them, with a consequent elevation of the blood pressure and a capillaritis. The anuria which is clinically observed to follow cases of acute or chronic infections is therefore the result of toxemia which constricts the kidney capillaries and sets up a tubular ischemia. The kidney capillaries are affected by circulating toxin the same as all other capillaries, but in the kidney the capillaries have a secondary effect on the tubules.

This action of the toxin on the vessels may be considered as a kind of arteriosclerosis. In fact, it is known that the acute and chronic infections produce arteriosclerosis. Jardine and Kennedy¹⁵ in a report of 12 cases of suppression of urine in eclamptic or pregnancy toxemia cases says that a certain amount of arteriosclerosis was found in some of them. Arteriosclerosis produces an ischemia in the organs which the arteries supply with blood. The case of anuria reported by Audendal and Hulst is indirect but precisely of this nature. In this case the abdominal aorta was thrombosed due to an arteriosclerotic process. The thrombus had spread into the renal arteries, with almost complete necrosis of the kidney.

The anurias due to toxemia in acute and chronic infections reported in the literature would appear to be explained according to Hofrichters' views. Of the cases of non-obstructive anuria collected by Fowler, 14 were due to bacterial infective diseases; 8 were due to the action of chemical toxic agents, particularly corrosive sublimate. Since the date of Fowler's report many cases of the same kind have been reported. A transient anuria is very frequently observed in cases of scarlet fever nephritis, and Higgins and Graf¹⁶ in reporting a personal case state that there are several cases of the kind reported in the literature, in some of which the anuria lasted up to a limit of 45 days.

A less usual case of anuria is the toxemia of

pregnancy and the puerperium. Jardine and Kennedy report 12 cases of suppression of urine of this type. In all cases there was the common feature that the patient suffered from the condition known as the toxemia of pregnancy. Cortical necrosis is one of the features of eclampsia and where necrosis is found there is always marked toxemia.

The mode of action in this as is other bacterial toxemias appears to be, as already stated, a capillaritis, interference with the blood supply and blood pressure, necrosis and anuria. When an interstitial nephritis is already present in a patient with a pregnancy toxemia, there is grave danger of suppression of the urine. In 6 of the cases reported by the authors named autopsies showed a symmetrical necrosis of the renal cortex. The autopsy of Girard's¹⁷ patient with eclampsia and anuria showed that the toxin cause epithelial lesions at the site of the active parts of the tubules, with intense congestion of all the renal parenchyma and interstitial edema. Commenting on his case Girard states that it only needs a slight interstitial edema in order that the pressure in the interorganic spaces of the kidney should become superior to the pressure in the afferent arterioles, resulting in scanty urine secretion.

The reason why anuria is not more frequently observed in cases of eclampsia is probably because the eclamptic toxin is modified in the liver before it is excreted by the kidneys, and it is only in cases in which the liver action is deficient and the toxin passes unaltered to the kidneys that capillaritis and cortical necrosis occurs in these organs. Of course, this applies to other toxins besides that of eclampsia.

The following case of anuria which I recently observed, I consider very curious and interesting. In this case the anuria followed an unsuspected rupture of the appendix with a limited peritonitis. I consider the etiology of the anuria in this case to be a toxemia arising from the peritonitis which easily affected badly damaged kidneys, especially since the liver was also found diseased. The case is therefore in line with what I have just said in regard to disease of the kidney and liver, facilitating anuria in toxemia cases.

CASE REPORT

Case 1. M. D., a man about 30 years old, admitted to the Alexian Brothers' Hospital about 5:45 P. M.,

July 26, 1928, acutely ill, complaining of anuria of two days' duration, intense abdominal pain and bloody vomit. Temperature 100.2; pulse 102.

History: The patient was seen the previous evening at his home by a local physician, who was informed that the patient had been treated with castor oil for acute indigestion. The physician gave a morphine injection which greatly relieved the patient. As the pain extended down to the scrotum and penis, the physician called the author into consultation and it was recommended that the patient be at once sent to the Alexian Brothers' Hospital for further examination.

Examined at the hospital immediately after admission by hospital physician and the author, it was agreed that the patient was suffering from suppression of urine. On catheterization only one-half ounce of urine containing blood, pus and twenty-five hyaline casts to the field was obtained. An attempt to introduce a cystoscope failed owing to the small size of the meatus until a meatotomy was done. Cystoscopy and roentgenogram of the urinary tract were negative.

A thorough physical examination was impossible on account of the patient's extreme condition. During the following two days the patient became steadily worse. Abdominal pain and distention increased; vomiting continued and the temperature gradually rose to 106 on July 28, when he died. Autopsy showed a perforated appendix with limited peritonitis and a marked diseased condition of the kidneys and liver.

Undoubtedly the appendix had ruptured some time before the patient was seen by his local physician. The kidney symptoms, including intense pain over the kidney area, entirely masked the symptoms of peritonitis, and even if the diagnosis of ruptured appendix had been made, the patient could not have been operated on owing to the suppression of urine.

The anuria observed in cases of mercuric chloride poisoning is typical of the effects of toxemia due to inorganic chemical agents. Flynn¹⁸ recently reported a case of complete anuria following the insertion of mercuric chloride tablets in the vagina. Bowers and Trattner¹⁹ also reported a case with anuria of 48 hours' duration.

An anuria is more likely to result in these cases of inorganic poisoning if there is some degree of nephritis already present. In the case of mercurial poisoning reported by Menatrier, Benard and Surmont²⁰ the patient died after an anuria had lasted 12 days. Autopsy, besides showing the recent effects of the mercury in the glomeruli and tubules, also showed the presence of an old glomerular nephritis and the recent effects were intensified where the nephritic changes were most marked.

The anuria which may occur in cases of tartaric acid nephritis as reported by Underhill and associates²¹ is also of this type.

The following case of anuria following mercuric poisoning was observed by me a few years ago. The case has some interest, inasmuch as it followed an intravenous injection.

CASE REPORT

Case 2. L. R., a physician, 37 years old, admitted to Illinois Masonic Hospital, July 21, 1925, suffering from symptoms of mercuric poisoning.

The history showed that the patient, who was a physician, had suffered persistently from boils. He had read in a medical journal a description of a method of treating boils by a mercuric intravenous injection. He sent the prescription to a drug store where it was filled and the injection was made by a colleague. There was some reason to believe that an error was made in filling the prescription and that an excessive amount of mercury was given. A few hours later he felt ill and nauseated, treated himself that evening and night but continued to feel worse. The following day he passed frequent stools containing blood and mucus. Urination became infrequent and practically ceased. He came to the hospital two days later with all symptoms aggravated and rapid irregular breathing. Anuria almost complete.

He received glucose and saline injections and sodium salts, including the acetate, intravenously and per rectum; also adrenaline to support the failing cardiac action. Restlessness and muscular spasms increased in frequency and intensity and he died in convulsions the third day following his entering the hospital. No autopsy.

Anuria in Cases of Blood Transfusion Due to Hemoagglutinins. We may now take up the consideration of anuria due to changes in the composition of the blood and more particularly that due to plugging or choking of the uriniferous tubules by the deposition of hemoglobin in cases of blood transfusion in which the bloods are not properly typed.

It is known that in a variety of circumstances, such as paroxysmal hemoglobinuria, blackwater and other fevers, the red blood corpuscles may become dissociated with the deposition of hemoglobin in the blood plasma and a consequent hemoglobinemia and hemoglobinuria.

Yorke and Nauss,²² in 1911, had shown that the injection of rabbits with a solution of hemoglobin produced an obstruction in the kidney tubules. Baker and Dodds²³ in repeating these experiments state that it is reasonable to suppose that the hemoglobin passes through Bowman's capsule in the dilute transudate, the re-

action of which is in the region of that of the blood. When the tubules are reached, reabsorption and concentration takes place, together with an increase of acidity of the urine. The hemoglobin is then precipitated; that is to say, if the reaction of the urine be below about pH 6 and there is a sufficient concentration of NaCl (about 1 per cent.) brown pigment will be precipitated in the tubules.

Hemoglobinuria is not uncommonly observed following blood transfusions with improperly matched bloods, and the function of the kidney becomes so deranged with deposits of hemoglobin in the tubules that the patient dies with suppression of urine and uremia.

The amount of hemoglobin set free during an attack of paroxysmal hemoglobinuria or blackwater fever is relatively small, in comparison with that set free during untyped blood transfusion, and the patient can usually dispose of it.

Bancroft, of New York, reporting in 1925, found 8 cases of anuria following blood transfusions reported in the literature, 7 of which were preceded by a hemoglobinemia. Fatal cases have been reported since by Bancroft²⁴, by Baker and Dodds, and 2 cases by Shera.²⁵ The bloods of donor and recipient in these cases were probably not properly matched and latent hemoagglutinins were present.

Treatment of Anuria. The treatment of anuria will be covered very briefly.

In anurias having a nervous origin relief can as a rule only be given by attention to any definite cerebral or nerve lesion. If of hysterical or spasmodic or reflex type, a ureteral catheterization will often relieve the nervous tension.

In toxic anurias both decapsulation and nephrotomy have been tried. Jardine and Kennedy say that in eclamptic anuria decapsulation is of no value. Girard states that in cases of eclampsia with anuria treated by decapsulation the mortality was 5 per cent. He found only 4 cases in the literature in which eclampsia with anuria was treated by nephrotomy, 2 cases of which were successful, and he adds one of his own. In this case the kidney that was incised began to function on the evening of the operation.

Bowers and Trattner recommend repeated venesection-blood transfusion in toxic anuria. In

a case of mercuric chloride anuria this method was followed with success, but a decapsulation was done as well. The venesection-transfusion lowers the amount of accumulated catabolic products by frequent removal and by repeated dilutions of the remaining circulating blood. It is a detoxifying procedure.

SUMMARY

I have hereby presented an exhaustive review of the literature on the subject of non-obstructive anuria with two case reports and personal observations.

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FACTORS THAT MAKE FOR SAFE GALL BLADDER SURGERY*

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In an analysis of 80 consecutive cases operated on for gall bladder infection at St. Bernards, we had a death list of seven. These operations were performed by the surgical staff and occurred during 1929. Our mortality of 8.8 per cent. was considered too high, and therefore,

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as the basis of this paper, I am dealing with the factors which may help reduce our mortality.

In perusal of literature on the subject, one is confronted repeatedly by reports giving a mortality as low as one and even one-half per cent. for cholecystostomies and cholecystectomies. Only occasionally will one find published a mortality rate of fifteen to twenty per cent. This discrepancy in mortality statistics is easily explained if one will analyze the type of cases operated on. Dr. F. N. G. Starr, Professor of Surgery at the University of Toronto, in an analysis of nearly one thousand gall bladder operations in speaking of mortality says: "In the uncomplicated cases of chronic cholecystitis, when a cholecystectomy is done, this is well under one per cent., while in the desperately acute imperative emergencies where only the simplest drainage is done the mortality is approximately 15 per cent., and in the variously complicated cases with acute or chronic pancreatitis the rate is almost 5 per cent." It is clear that the type of case is the underlying factor for the difference in our mortality rate.

Analyzing our mortality list for the year 1929 the following is revealed: (See Table 1.)

no alarming complications such as heart, kidney, etc., except in one of the cases in which the blood sugar was .367 and the kidney showed many hyaline and granular casts. However this case was under treatment and observation until the kidneys cleared up and the blood sugar reduced to normal before operation.

In this series of 80 cases, 15 were acute, and with the exception of those that died, made uneventful satisfactory recoveries. Among the recoveries we have one case of acute gangrenous cholecystitis with large rupture and copiously spilling its infective contents into the peritoneal cavity, soiling everything it came in contact with—still we have recovery.

What factors, therefore, have we which will help us to obtain a lower mortality? They might be classified as:

- A. Those conditions over which we have no control.
- B. Those conditions which we are able to modify. Under the first division "the conditions over which we have no control" we may place:
 - 1. The general condition of the patient.
 - 2. The pathology as it exists on first examination.

TABLE I
MORTALITY LIST

	Age	Tempera- ture	Leucocyte Count	Abdomen	General Condition	Pathology	Remarks
I.							
205,060	48	101	24,800	Acutely tender	Poor Risk	Acutely edematous Stones (G. B. Re)	When reconsidered would not operate
II.							
203,306	41	98.6	5,000	Tenderness (chronic)	Fair Risk	Autopsy Thymico Lymphaticus Stones	Would not operate
III.							
204,994	60	101	14,200	Acute	Poor Risk	Stones Empyema of G. B. Cholecystostomy	When reconsidered would operate
IV.							
203,630	54	99	12,000	Sub acute	Poor Risk	Cholecystostomy Stones	On entry—Kidney—casts B. Sugar .367. Recon- sidered would not operate
V.							
205,833	56	102	14,000	Acute	Fair Risk	Acute G. B. Stones edema	Would not operate
VI.							
201,419	39	98.6	6,000	Sub acute	Fair Risk	Cholecystostomy No Stones	Would not operate
VII.							
204,194	36	100	(Lost)	Sub acute	Good Risk	Cholecystostomy Stones	Would not operate

In an analysis of these seven cases there is nothing that definitely contraindicates operation; they were all operated upon by conscientious, good surgeons who chose the operative method of treatment, yet when confronted with a fatal outcome the empyemas was the only case, which upon reconsideration, would be deemed advisable to operate on. There was no icterus,

- 3. Associated diseases and complications.
 - 4. The type of infection, its virulence and fulminance.
 - 5. The anatomical anomalies of patient.
 - 6. Patient's age, obesity and constitutional make up.
- With the above factors we must accept conditions and fight along the defensive lines.

Under the second division "the conditions which we are able to modify" might be found:

1. Choice of anesthesia.
2. Accuracy of diagnosis.
3. Surgical judgment.
4. Length of operation.
5. Perfection of technique.
6. Icterus.
7. Blood sugar.
8. Acidosis.

In consideration of these factors we must be aggressive. They call for positive action, judgment and procedure. Much profit could be derived from a critical analysis of each heading with especial reference to its influence on mortality.

In an analysis of the seven fatal cases:

- 3 were acutely ill, 4 sub acutely.
- 4 were cholecystostomies, 3 cholecystectomies.
- 6 out of the 7 had stones.

Of the remaining 73 cases which satisfactorily recovered:

- 12 were definitely acute, 61 chronic.
- 39 were cholecystostomies, 7 acute, 18 with stones.
- 34 were cholecystectomies, 5 acute, 28 with stones.

(46 had stones and 27 had no stones.)

From an analysis of these cases, I believe, one struck by the fact that the surgeon is governed by the presenting pathology and condition of the patient as to his line of procedure—drainage or excision. The presence or absence of stones did not seem to influence the type of operation in this series.

In an analysis of these 80 cases from a standpoint of early infection as a possible fore-runner or feeder for an infected gall bladder we have the following careful historical analysis of the 43 cholecystostomies:

7 gave history of childhood involvement of gastro-intestinal tract.

- 16 of appendix involvement.
- 4 of pneumonia.
- 3 of gynecology infection.
- 7 of influenza, scarlet fever, teeth, tonsils, etc.
- 6 failed to give any information as to possible source of infection.

In the 37 cholecystectomies we have the following history or possible fore-runner:

- 7 with appendix infection.

4 with early gastro-intestine involvement, dyspepsia, jaundice, etc.

4 with definite chronic rheumatism.

18 with scarlet fever, teeth, tonsils, influenza, pneumonia.

2 with gynecological infection.

2 failed to give information from history.

There seem to be no relationship to the type of infection and the formation of stones. Here would be a splendid opportunity for research. It is singular that in the cases which gave a definite rheumatic history the gall bladder was removed in each case. These factors which we are able to govern or modify are of much importance, and recovery or failure may hinge on any one of them; still, the idealistic way would be the prevention of gall bladder disease. This I believe has a great future. It appears that gall bladder disease hinges on two factors:

1. Infection.

2. Liver function, especially cholesterol-metabolism. If these two are perfectly controlled it would seem as though gall bladder disease would sink to a minimum.

Regarding infections: The profession is keenly alert to it, especially in children. However, they seem to have lost sight of the fact that a well-balanced life, in which proper consideration is given to muscular development and exercise, out-of-door ruddiness and hardiness of constitution is a factor influencing infection and liver metabolism.

However, as long as we have infections we have gall bladder disease. How will we reduce mortality? It is self-evident from an analysis of statistics that the line which divides our low mortality from high mortality is the chronic from the acute cases. Therefore, in all simple acute cases it is our duty to tide them over to the chronic group before operation. These simple infective cases practically all recede and become chronic under anatomic and physiological rest. They may have recurrences and should be operated on in a remission. In phlegminous, suppurative, gangrenous, and perforative gall bladder, operation should be immediate. The board-like rigidity with fever, chill, rapid pulse, pain and vomiting should direct us to immediate operation, for in this class of cases our operation is life saving. Let us face them squarely and accept our heavy mortality, rejoicing in

those whose life we have saved. Ordinarily the diagnosis in the acute cases is easily made. Error may come in mistaking a high lying, gangrenous appendix or perforated-gastric or duodenal ulcer or an acute involvement of pancreas. Palpation, touch showing rigidity and tenderness, physical examination and blood examination are of paramount importance. Cholecystography has no place in such acute cases.

In chronic gall bladder we have a condition more elusive and difficult to diagnose. Even after most painstaking care we are sometimes mistaken. Functional analysis of gall bladder by Grahan-Cole method of cholecystography is of inestimable value. Its correctness is said to be above 90 per cent. Its greatest failure is stones. It should be used universally in cases of doubtful diagnosis. In our x-ray department we have been rechecking our cases of cholecystography, having made the discovery that the pictures were not uniform. Oral administration is uncertain, the absorption not being constant. It is well to check with the liquid preparative against the capsule administration. In five cases at the first attempt the gall bladder showed no filling; subsequently, however, we were able to fill these gall bladders. No gall bladder examination is complete without examination of stomach and duodenum. When there is a discrepancy between cholecystography and clinical analysis it is wise to be guided by the clinical findings. Chronic infection may be the result of an acute subsidence or come on insidiously. Once established it seems to be always present. It is, I believe, never primary, the infection being in the wall (interstitial), mucosa (catarrhal) or both. Upon this pathology rests the logic of either drainage or extirpation. Statistics collectively taken justify our conclusions that cholecystectomy is the logical operation in these chronic cases. Crile, in the *Annals of Surgery* of August, 1923, gives a nice summary of statistics tending to prove this.

We have yet to prove that the removal of the gall bladder in any way changes the physiological process of the individual. Nature really does a functional cholecystectomy in these chronic cases by destroying its function. In chronic cases the relationship of morbidity and mortality to the time of operation is well estab-

lished. Infection is permanent. When it is necessary to operate on an infected gall bladder, the earlier the operation the better. To procrastinate is therefore a neglected responsibility of the attendant. In a given case the earlier the operation the less the pathology and the less the mortality and morbidity.

The keenness of diagnosis varies with different men, therefore, as long as we have personal equation factor in our surgeons we will always have different results.

Infection as it comes to the liver and its adnexa seems to have its localization first in the gall bladder, later we have formation of stones with involvement of ducts followed by disastrous consequences on liver substance, pancreas, and the involvement of surrounding organs by continuity; blood dyscrasias, icterus, liver cirrhosis, pancreatitis with secondary constitutional influences. All this means but one thing—early operation.

Conclusions: 1. In simple acute cases of gall bladder infection—wait. It would greatly reduce mortality. 2. In fulminating acute cases operate immediately, since early operation would reduce mortality. 3. In chronic cases an early operation reduces morbidity and mortality. 4. It is our duty to use all factors under our control for safety of the patient.

DISCUSSION

Dr. Clyde A. Finley, Galesburg: Dr. Fuller earlier in the day expressed the opinion that it would be better if at all times we could have all the cards laid on the table. One is immediately struck with this paper of Dr. Haeberlin by the frankness with which he presented it. It would seem that he has sat in rather severe judgment of, and is perhaps a little over critical with, himself. We must admit that seven deaths in eighty cases is too high, but in a short series of cases statistics may mean nothing, or possibly they can mean everything, so we cannot place too much dependence on the fact that seven cases were lost in eighty operations. The doctor has not gone into an analysis of these deaths sufficiently to give us the cause in each one, neither has he told us in all of the cases why in a reconsideration he would not operate. I am inclined to agree with him, though, in his opinion on each one of them. But I am more inclined to the belief that he would make a change in the routine handling of them, and perhaps operate at a later period.

There is a factor which he did not bring out, but which I think is having a marked influence in our death rate throughout the country. It is always true

that when any lay organization, or individual, interferes in fields that are strange, disaster results. There has been so much lay propaganda and interference in the field of medicine and surgery in the last few years that a great many of these bad results can be traced back to it. Our patients come to us for operative work and, when needed, we advise it, but immediately they outline for us how it is to be done. "Doctor, I do not want to go into the hospital two or three days before operation; I want to go in the morning and be operated on the same day." We are influenced too much by this kind of talk, for the patient is being influenced by the propaganda to cut down the period of hospitalization and reduce the cost of being sick. And on the later end of the patient's stay in the hospital we are influenced again. As soon as the period of pain is over the patient feels well and as long as he or she is lying on the back, feels strong and wants to go home. And sometimes we permit it. We have been influenced more than we should be, and so, in a great many cases our good results have been hampered.

Dr. C. C. O'Byrne, Chicago: In a simple acute case you say you would not operate. How can you tell it will not become fulminating? Why is there danger in operating on a simple acute case?

I would also like to ask what influences your judgment for cholecystectomy or cholecystotomy? Years ago I did not take out gall-bladders because I was afraid. Recently I have taken out every gall-bladder I have operated on except one. This was an enormous gall-bladder; it was just at the stage of becoming gangrenous and was adherent to everything about it. The patient was in the hospital six weeks and we did nothing but drain. The patient made a recovery. If you remove the gall-bladder it is hardly necessary to drain. In ordinary cases I make no drainage. The patients are in the hospital about two weeks. If you drain, the stay in the hospital is prolonged by a very considerable time and the patient does not do as well as those in which the gall-bladder is removed and there is no drainage. I have only left in one gall-bladder in the last several years and my results have been very gratifying.

Dr. J. B. Haeberlin, Chicago (closing the discussion): In simple acute cases I would be governed by the condition from hour to hour. I would postpone operation when improvement is shown. On reconsideration of the cases we have had, I would be willing to take chances over again and postpone operation.

I think the decision as to cholecystectomy or cholecystotomy depends on the individual surgeon. I think it is logical if the gall-bladder is infected and the infection is either in the mucosa or interstitial tissue, if the gall-bladder does not feel normal and the process is a chronic one, if there are adhesions to the surrounding tissues, if the liver substance does not have a normal appearance and you have little white lines showing lymphatic drainage of the gall-bladder in the liver substance, then one should do a cholecystectomy.

DISEASES OF THE MUCOUS MEMBRANES OF THE MOUTH

(As Encountered in Dermatological Practice*)

CLEVELAND WHITE, M. D.

CHICAGO

In some diseases of the skin, the mucous membranes of the mouth are involved and often furnish a clue to establish an absolute diagnosis. Furthermore, in dermatological practice, there are found some diseases which are peculiar to the mucous lining of the mouth or happen to be so confined exclusively to such areas without the usual concomitant cutaneous findings. Because of the occasional difficulty in establishing a diagnosis and the necessity of establishing a correct clinical opinion, it is felt that it is fitting to discuss some of the more common diseases of these areas and their management. This is a somewhat neglected subject, at least in dermatological circles, but a very important one.

As it has been stated by Fordyce and MacKee,¹ "diagnostic ability for mucous membrane lesions can be acquired usually by constructing a new series of usual impressions based on observation of such lesions alone or combined with a study of their associated prototypes in the skin." The features of individual lesions may at times be sufficient to establish a diagnosis like leukoplakia or malignancy but often one has to base the diagnosis on the associated lesions of the integument as in erythema multiforme or pemphigus.

Oral Mycoses (Superficial.) The interest in superficial fungus dermatoses (ringworm) due to so-called ringworm fungi (or hyphomycetes), thrush, and yeast organisms engages one's attention more and more in certain infections of the mouth and tongue. The thrush infections of infants are well known to all clinicians, but the adult cases are quite new to us all. It must be bore in mind that thrush can occur on the skin either with or without mouth involvement. The causative organism is one of the *Monilia* group; some fourteen different *Monilia* have been isolated in this one disease.

Case 1. A boy, 4 months old, had white patches on

*Read before the McLean County Medical Society, Bloomington, Ill., April 8, 1930.

¹From the Department of Dermatology, Northwestern University Medical School and the Department of Dermatology, the Norwegian-American Hospital.

the side of the mouth and on the lips; he had had for two weeks a huge bilateral cervical adenitis. Erythematous scaling patches with some crusts were on various parts of the lower part of the face and these dermatological findings were the first noted by the parents. The discrete inflammatory areas on the face with the scaling and oozing suggested a fungus basis at once. The areas in the mouth were creamy colored, distinctly elevated, and some were confluent.

Scrapings were taken and were examined both by the well known 10% potassium hydroxide method and by methylene blue stain. Abundant long filaments were found and cultures later proved to be *monilia albicans*. As the baby was extremely well nourished, there were no apparent dietary factors.

Case 2. A business man, aged 56, had had a heavy "coated" tongue for three months. He had been under a physician's care in a western city. The fungus nature had been recognized and various fungicidal preparations used. He had lost considerable weight because the tongue involvement had practically destroyed his sense of taste. His tongue had improved some but sufficient elevated whitish areas were still present to make many cultures which grew as *monilia*. Because of marked loss of weight, examinations were undertaken to rule out any possible systemic invasion. An x-ray examination of the chest was pronounced negative by Dr. R. H. Warden of the Norwegian-American Hospital. A stool examination was found negative by Dr. H. R. Fishback, pathologist of the same institution. Local treatment with gentian violet and weak doses of radium finally produced a cure. He is now enjoying excellent health.

Case 3. A man, aged 48, has had erosions of the commissure of the lips for 18 months and feared cancer. Examination of the areas revealed crusting erosions of the lips. Scrapings from the areas revealed both hyphae and yeast. Both *cryptococci* and *monilia* grew in culture, an unusual finding. The diagnosis of mycotic *perleche* was made. Fungicidal preparations along with x-ray treatment cleared the condition. These representative fungus infection cases show the growing importance of fungi in the etiology of mouth infections.

Vincent's Infection.—"Trench mouth" (or so-called Vincent's infections) has become more common since the war but one sees many cases which might be so considered, but in reality are other diseases with secondary infection with Vincent's organisms. Vincent's organisms are easily found and are known to all.

Practically every clinician is acquainted with Vincent's stomatitis in which the gums are swollen and ulcerated, and teeth are often bared through erosion of the alveolar margin. The ulcers are shallow, discrete, have even borders and a non-indurated base.

Case 4. A man, aged 30, had had sore gums for

four weeks with some sore throat and some tender areas on the commissure of the lips. He stated he had had "trench mouth" for three weeks. Examination showed many syphilitic mucous patches—in fact, the chancre from which *spirocheta pallida* were found was still present on his right lower chin.

Case 5. A young physician had developed ulcers on his gums and side of his tongue for one week. His temperature varied between 100° and 102°. The clinical appearance was that of Vincent's disease and was substantiated by laboratory examinations. Local use of sulpharsphenamine was quite efficacious. Numerous alkalis had been used. I cannot subscribe to the statement that all Vincent's cases disappear miraculously under sodium perborate paste—some of the milder cases do.

Case 6. Vincent's angina is sometimes a very severe affliction. A young man of 23 had had sore throat for three weeks. Several ulcerated areas were present on the tonsils, pharynx and extending to the hard palate. Several necrotic horny spicules were loosened from the hard palate. His blood Wassermann was negative. Heroic dosage of neoarsphenamine, intravenously and locally finally arrested the process but there was considerable resultant deformity of the parts.

Malignancy. Cancer of the mouth, whether on the lips, cheeks or tongue, demands early diagnosis and radical treatment as it is always, clinically speaking, of the squamous celled type and metastases sooner or later.

An indurated mass or an ulcer with an indurated border should be viewed with suspicion and, in case of doubt, a section of tissue should be taken for pathological examination. Whether tertiary syphilis is present or not, the treatment is the same, as this infection is then not contagious and the malignancy is to be eradicated without any delay. The method of choice is wide destruction by electro-coagulation followed by radium. Radium alone has been found to be insufficient treatment in a large percentage of cases. Wyeth of New York, who has had a wide experience with high frequency current and radium, states in a personal communication that his percentage of recurrence is vastly less under the former method than with radium. Of course, where there are already metastases as in the cervical lymph nodes and biopsy shows a high grade malignancy, there is no known method of cure and any treatment must be of palliative nature.

Precancerous afflictions commonly encountered are leukoplakia, luetic gummas, scars, hypertrophied papillae, and ordinary papillomas. The latter two can be removed surgically or destroyed

by diathermy. The factors of ragged teeth and smoking are known to us all.

Case 7. A man, aged 32, had had a fissure on the dorsum of the tongue for three months. Examination showed a fissure about $\frac{1}{8}$ inch deep and about $\frac{1}{2}$ inch long, lying within a patch of leukoplakia. Clinically it was considered to have undergone malignant degeneration. A biopsy showed typical squamous celled epithelioma. Destruction by electro-therapy and insertion of radium needles produced a clinical cure. The leukoplakia was apparently traumatic in origin.

Case 8. A woman, aged 38, had had a hard swelling about the size of a hazelnut on the right side of the tongue for six months. Induration of border was clinically epithelioma. All usual laboratory tests were negative. Thorough destruction has produced a cure of two years' standing. The cervical lymph nodes have never been involved.

Case 9. A man, aged 35, had a large hard swelling just beneath the ramus of the jaw on the right side. Examination showed a mass of hard discrete glands and were pronounced to be of a malignant nature. Upon further questioning it was found that he had a sore on right side of lower lip which had been treated by radium eighteen months ago. Section of a gland showed definite squamous celled epithelioma of grade three type. He died in two months' time.

Syphilis. Extragenital chancres occur around the lips and on the tongue. The persistence of an elevated, indurated erosion with a marked unilateral bubo should at once call for a dark-field examination. The blood Wassermann is of limited value in an early syphilitic infection, becoming positive in a large percentage as the secondary stage is approached. Cutaneous manifestations when present or mucous patches may clinch the diagnosis upon inspection, but often it is necessary to confirm by the aforementioned laboratory procedures. Chancres may be multiple.

Case 10. A woman, aged 21, had had what she called a "boil" on left lower lip for several weeks. She claimed that she had had medical attention for a "thickened" cold sore; at any rate, the huge unilateral cervical adenitis drew one's attention to the possibility of a primary luetic lesion. The darkfield examination was found to be teeming with spirocheta pallida and the blood Wassermann was strongly positive. Apparently she had gained the infection from kissing some one who had had mucous patches on the lips.

Secondary syphilis occurs as mucous patches in the mouth. Relapsing secondaries are prone to occur in such a moist area. Both types are highly infectious—in fact the seriousness of infections from recurrent secondaries should be emphasized and reemphasized. Mucous patches

are round or oval patches which have resulted from erosion of superficial ulceration of luetic papules (like on the skin). A grayish exudate is usually present. While they can occur on any part of the mucous membrane, they are usually found on commissures of lips, the buccal surfaces, anterior pillars and tonsils. I have had the opportunity to see a goodly number the past several years and a high percentage have been considered trench mouth or Vincent's infection even in the presence of cutaneous findings which if investigated would have pointed strongly to a secondary syphilid.

Case 11. A man, aged 28, had had a sore throat for four weeks. Examination showed many mucous patches on the gums, tonsils and anterior pillars. The blood Wassermann was strongly positive—there were no cutaneous findings. There was no history of any primary lesion.

Case 12. A man, aged 42, had had a severe sore throat for three weeks having such marked constitutional symptoms that he had been unable to work. Several deeply ulcerated mucous patches were present. He gave a history of having had a primary penile lesion and later secondaries with mucous patches occurred; then he was given two intravenous treatments of neosalvarsan. Discontinuance of treatment by the patient finally allowed the infection to recur with marked severity. These relapsing or recurrent mucous patches are highly infectious, are often destructive, and may cause serious cerebrospinal disturbances; they result from inadequate or poorly managed treatment or are evidence to the patient's lack of resistance to *Spirocheta pallida*.

Late or tertiary lesions of mouth are essentially of three types 1. leukoplakia, 2. gummatous infiltration in the tongue or the mucous membranes, and 3. destructive bone lesions of the hard palate or jaw. (The perforated palate is quite diagnostic.)

Gummas begin as small nodules which frequently ulcerate. If they do not, they sclerose and form scar tissue. In case of doubt, a biopsy of an ulcer should be performed; the blood Wassermann is usually positive. Osseous gummas of the hard palate usually leave a resultant perforation that is quite easily recognized.

The stigmata of congenital syphilis, as Hutchinson's incisors, interstitial keratitis, and so forth, are well known.

Leukoplakia. Leukoplakia or so-called "smokers' tongue" may be of syphilitic or of traumatic origin. It consists of glistening, whitish, thickened patches on the tongue, lips or buccal sur-

faces. It is extremely important that it be recognized, for it is definitely a precancerous condition. The subjective symptoms vary from a slight, unpleasant dryness to severe pain. Fissures in such areas are very painful and mean rapidly approaching malignancy. In the luetic type it is necessary not only to treat the syphilis to decrease the incidence of new areas of leukoplakia but also to destroy any residual areas by diathermy or cautery to prevent the development of cancer. I agree thoroughly with Eller and Anderson² that radium and Roentgen rays are only mentioned in connection with the therapeutic agents of leukoplakia to condemn them. Smoking should be discontinued and any jagged teeth should be fixed. That all leukoplakias are due to smoking as stated by Bloodgood³ is certainly erroneous.

Case 13. A man, aged 50, who was an incessant pipe smoker, accidentally noticed a fan-shaped whitish area on each buccal surface just behind each commissure. No evidence of syphilis was ever found; the leukoplakia was, no doubt, due to smoking.

Case 14. A woman, aged 33, had had a sore tongue of several months' duration. Examination of the tongue showed it to be almost covered with leukoplakia. The blood Wassermann was strongly positive. The tongue has completely cleared with antiluetic treatment.

Case 15. A woman, aged 29, had several glistening patches just posterior to each commissure. Behind these areas recurrent bullae appeared from time to time—they occurred on an erythematous base. The leukoplakia was considered secondary to these recurrent giant apthae. No real etiological factors have been found but soothing applications have produced a considerable improvement.

Fordyce's Disease. Case 16. A man, aged 42, had a group of some 12 to 15 small slightly elevated yellowish discrete areas just inside of each cheek. There had been no subjective symptoms. So-called Fordyce's disease is of no portent and is just as well left alone for treatment is no avail. Many observers have found a hypertrophy of the sebaceous glands.

Cysts. Soft, circumscribed, slowly enlarging cystic tumors are fairly common in the mouth and on the lips. These mucous retention cysts have to be thoroughly removed either by complete excision or by electro-thermic methods. A combination of these methods usually suffices. Mucous adenomas are occasionally found on the soft palate.

Tuberculosis. Tuberculous ulcers usually have an undermined ragged border and are usually painful. The tongue and lips are the sites of election (Darier⁴).

Case 17. A man, aged 24, observed recently had such an ulcer on the pharynx. A biopsy taken to confirm the opinion showed typical tuberculosis. Often there is pulmonary involvement. The lesion healed under local helio-therapy and no apparent focus has ever been found.

Common Diseases (Associated with Cutaneous Manifestations). Lichen planus and erythema multiforme are occasionally confined exclusively to the mucous membranes of the mouth. Pemphigus can start in such a way. More rare conditions are pellagra, leprosy, drug eruptions (as luminal or iodides), actinomycosis, blastomycosis, granuloma inguinale, and the lymphoblastomas. The erythematous swollen tongue of pernicious anemia must be kept in mind as an important diagnostic sign (Middleton⁵).

Case 18. A woman, aged 30, had had recurrent sores on the pharynx and hard palate for 6 years. According to her history, she had been treated for four years for syphilis for this condition. After several months' observation, recurrent bullae have occurred again and again upon a normal mucous membrane and I have felt that a diagnosis of pemphigus was justifiable—of a rather benign type inasmuch as no skin lesions have appeared.

Case 19. A man, aged 35, had had recurrent vesicles on the lips upon an inflammatory base. A concomitant bullous and iris type of eruption of extensors of forearms confirmed the diagnosis of bullous type of erythema multiforme.

Case 20. A boy, aged 18, had several itching papules of the glans penis. Investigation of mouth showed a fine grey network on each buccal surface with thickened areas at intersections or so-called nodal points, a typical manifestation of lichen planus.

Geographical Tongue. So-called "Wandering Rash" on the tongue is occasionally seen. Usually the patient is considerably alarmed. Treatment is usually of little avail.

Case 21. A man, aged 22, noticed that his tongue suddenly felt scalded after drinking coffee. Examination showed several large superficially denuded areas, typical of this syndrome.

Torus Palatinus. This entity is fairly common but not well known, at least not by this name. Dentists are well acquainted with it—a congenital hypertrophy of the bones at the medical junction of the hard palate. It is of no grave importance, being mentioned because it is sometimes confused with sarcoma or luetic periostitis.

Case 22. A woman, aged 35, had recently noticed a swelling in the roof of her mouth. There were no subjective symptoms. Examination showed a horny broad elevation in the mid-line by the hard palate. It

was a typical case of torus palatinus; no treatment was advised at that time.

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104 South Michigan Ave.

A DEVICE WITH FIXED SAFETY LIMITS FOR GAS INSUFFLATION AND LIPI- ODOL DISTILLATION IN TUBAL PATENCY EXAMINATIONS*

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CHICAGO

In considering the causes of sterility in the female, it is important to remember that the ovum has no motility of its own.

Normal conditions for pregnancy requires the passage of the ovum from the ovary to the uterus. This passage of the ovum from the ovary to the uterus requires: 1st, that the tube be patent and since the ovum has no motility of its own, the tube may be patent and yet the ovum cannot pass to the uterus if the mucous membrane is affected with any form of pathology such as to abolish the function of the ciliated epithelium.

The mechanical sweeping of the ovum down the tube by the ciliated epithelium, therefore, requires 1. normally functioning cilia, and 2. patency of the tube.

The Rubin test, originated in 1919, was devised by Rubin to demonstrate patency, and Rubin's further studies of the peristalsis of the fallopian tube showed that absence of tubal peristalsis was really a demonstration of tubal pathology such that the function of the ciliated epithelium had been lost.

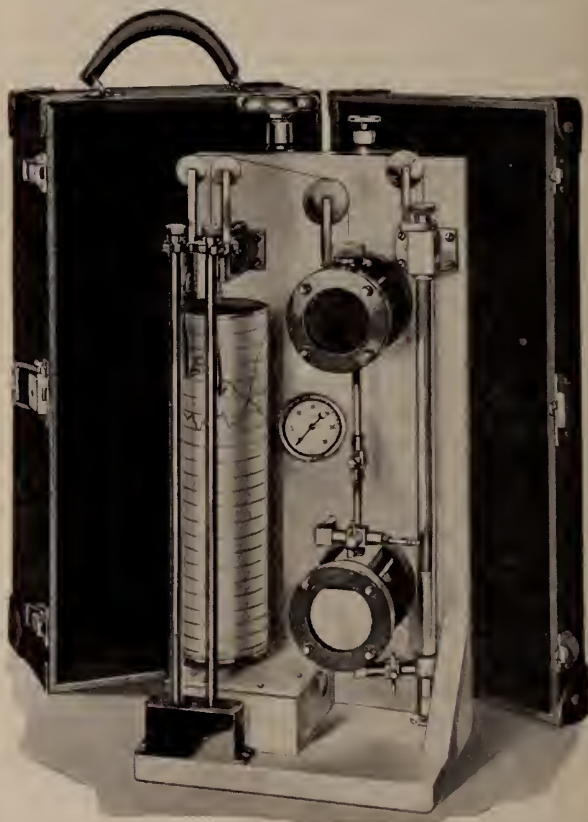
In other words, the usual demonstration of patency is not sufficient; tubal peristalsis must also be proven before any rational prognosis in any given case of sterility can be made.

The type of apparatus here shown was de-

signed to record by tracing the condition of patency or non-patency, and also to record by tracing the character of the tubal peristalsis from which could be judged the normal or pathological condition of the tubes and their ciliated epithelium.

Tracings showing failure of CO₂ gas to pass the fallopian tubes is proof of non-patency—one of the commonest causes of sterility. Tracings showing absence of tubal peristalsis is proof of tubal pathology—another cause of sterility, even though patency may have been demonstrated.

The reasons for building into the apparatus fixed limits of such factors as 1. the total volume



of CO₂ possible to administer during the insufflation test, 2. the total pressure, 3. the rate of pressure increase have been given and discussed in detail in a former publication describing this apparatus. (Am. Jour. Obs. & Gyne. Jan. 1930.)

DISCUSSION

Dr. F. Lee Stone, Chicago: In carrying out work of this nature some years ago Dr. Rubin worked out a device with a kymographic recording instrument and the blood pressure recording at the same time, which was rather cumbersome. About a year ago I took the proposition to Dr. Jones and suggested he figure out an instrument that would serve all these purposes and be

*Read before Section on Radiology, Illinois State Medical Meeting, May 22, 1930.

easier to handle, as well as combine these safety measures which he has included.

I have used this instrument in upwards of 135 cases and it is entirely a one-man instrument. The procedure is very simple. Care has to be taken, of course, in doing any tubal patency work, to obtain an airtight or a gas tight connection between the cervix and the cannula.

The value in recording the impulse of the gas as it passes through has been brought out by Dr. Rubin some two or three years ago. Considerable work on tubal peristalsis has been done.

Dr. Horry M. Jones, Chicago: In answering Dr. Orndoff's question in regard to the actual pressure that exists within the tubes, it is only necessary to recall the physical law that gas pressure is identically the same at all points in a closed system, and therefore, the patent tube has in it a gas pressure exactly equal to the pressure registered in the chamber of the apparatus, irrespective of abdominal pressure or other influences affecting the pressure within the tubes.

Case after case of patients who give the history of from one to many years of sterile married life have become pregnant within a month or two following the application of this test. It is, therefore, believed that the procedure has brought about conditions favoring pregnancy simply by disturbing the mucus plug in the cervix or temporarily dilating the cervix, or removing inspissated mucus from the tubes when these are not actually closed by adhesions.

COMMENTS ON CANCER TREATMENT

ALBERT SOILAND, M. D.

LOS ANGELES, CAL.

For centuries cancer has been known to the medical profession as an incurable disease. Up to the year 1890 surgery had accomplished more than any other agency for this intractable enemy of mankind. True, a great many caustic salves and pastes, as well as destructive acids, had been used by a certain group of physicians, and these applications undoubtedly destroyed a number of superficial lesions which in many cases may have been cancerous. Today this method of treatment has been abandoned for more humane and successful remedies.

In 1890 surgery in the most intellectual medical centers of the world could offer no reliable statistics which would prove a possible ten per cent. five-year cure of all types of cancer encountered. Between 1895 and 1900 both x-rays and radium were discovered. These agents were shown to effect marked changes in living cells, and it was found that they were able to heal a certain number of neoplastic lesions of the sur-

face and also to have some effect on deeper structures. That decade, however, did not materially increase the ten per cent. of five-year clinical cures which surgery had by this time been able to bring about.

By 1910 a notable advance had been made in the knowledge of these mysterious forces, x-rays and radium, so that they together with surgery showed an approximate twenty per cent. five-year cure of all cancer cases subjected to treatment. This unquestionable improvement over previous results created renewed efforts on the part of the profession to increase their knowledge of surgery and radiation.

When the decade 1920 arrived, surgical skill had advanced, surgical technique had been improved; similarly both skill and technique in the use of x-rays and radium had been increased, and the statistics of approved and recognized clinics and hospitals showed a total five-year curability of thirty per cent.

We now reach the fourth decade of 1930. A number of us have kept careful watch of the work of creditable institutions both in this country and abroad, and we feel that we can conservatively claim at the present time that the total five-year curability of cancer is approximately forty per cent. It is of course obvious that no statistics of a mathematical exactitude can be established, but we believe the above outline to be practically correct.

During these past forty years many devices, numerous electrical and mechanical humbugs, sera of various types, and a long list of nostrums have been foisted upon the public as cures for cancer. Each and all of these up to the present time have proved failures. We fall back again, and yet again, on the help offered by the procedures mentioned in our opening paragraphs—surgery, by knife or electrical methods, and x-rays or radium, employed with a highly perfected technique.

Surgery is a method of precision which has apparently reached nearly, if not altogether, its highest level. Radiation, however, is a much younger science, the mastering of which no one at the present moment can rightfully claim. Nevertheless, progress in that direction is constantly recorded. The earlier hope that x-rays and radium would prove a universal cure for cancer can hardly be realized, but our clinical

studies and our researches in that direction must not relax.

It is significant to point out the fact that during the last twelve months the leading medical men of northern Europe have added the enormous amount of thirty-five grams of radium to their former holdings. Different institutions in the United States have, in the same time period, acquired approximately twenty grams of radium. The total cost of this amount of radium is approximately, at the present market price, five million dollars.

At the same time, the world's best electrical engineers have developed apparatus which generates an x-ray force which almost equals that of some of the rays of radium. These two agencies are now used in every modern and well equipped hospital in the world for the treatment of cancer. It does not therefore seem unlikely that at the end of the present decade the total curative action on cancer of all sorts may reach the happy figure of fifty per cent. clinically well for a five-year period or more.

In our present day work we court the closest possible cooperation with the surgeon and the pathologist, for this combination has made possible the gradual improvement in cancer treatment results which we have attempted crudely to interpret by decades in the preceding pages. Let us now briefly visualize how such cooperation has also been of untold benefit to the radiologist.

One of America's outstanding pathologists, Ewing, in his recent work on the pathology of bone, has observed some interesting effects of radiation in osteosarcoma which he reported to the staff of the Memorial Hospital in New York and to the Radiological Society at the Toronto meeting. Those subjects in whom radio-resistance was low, showed effects more than palliative, and in several cases apparent clinical cures were seen. A number of patients were shown, one of whom had been well for ten years following treatment for an osteogenic bone sarcoma of the thigh. In those tumors which Doctor Ewing found more radio-resistant, he obtained no appreciable local effects upon the primary growth. In several such cases studied, however, he found that while the local lesion went on unchecked under the most active radiation, no metastasis occurred, even in the type of sarcoma which, untreated, always metastasizes.

This brings up the question, Is it not possible to convert a primary malignant bone tumor into a safely operable one with the same success as in certain soft tissue tumors? Some of us have reasons to believe this to be a fact.

Lord Moynihan, of England, vouchsafes the opinion that surgery for cancer of the rectum, other than the construction of colostomies and similar mechanical work, will soon be discontinued. This is in direct contrast with the views of most of our present day proctologists. He also expresses his belief that it is poor surgery to use the cold knife in the eradication of cancer of the tongue; that in such vascular tissue there is grave danger of rapid cancer dissemination under the scalpel. Radium needles are his choice for treatment, employing as an auxiliary the electrical knife when indicated for gross removal of an offending mass. Likewise in cancer of the breast he has substituted radium implanation for surgery.

This clearly shows that surgery plus radiation therapy have demonstrated their survival in the long test of time by fitness, and that all other agents which have clamored for recognition have been weighed in the balance and found wanting. Referring to the colloidal metals as carcinolytic agents, that of lead, first introduced by Blair Bell of Liverpool, gave promise of accomplishments which have not been fulfilled. We cannot deny to Bell the results of his early work which actually demonstrated certain clinical cures in patients beyond the scope of surgical or radiation help. Yet, other workers on the Continent and in America have been unable to duplicate Bell's results, and today, except in a few instances, the majority of cancer students have discontinued the method. We ourselves made clinical tests in a number of patients under a rigid regime, but our response was so ineffectual and hazardous to the patients that we discontinued the process. Of the other colloidal metals, that of copper we likewise tested out, but soon gave up as useless. Next came colloidal gold which, if for no other reason than that it was sponsored by the name of a well known clinician, had a sudden wave of popularity. It is also disquieting to know that altogether too many physicians, who ought to know better, are injecting colloidal gold into cancer patients of every type, without the slightest clinical evidence to

demonstrate its value as a curative agent in this disease.

A bismuth colloid came to us more recently from Germany, and while it is no more specific for cancer than the other colloids mentioned, it has one attribute which makes it more desirable and that is its freedom from toxicity, even in major dosage. We have made a study of this preparation over a year's time in the hope, as expressed by its sponsors, of increasing the radio-sensitivity of tumor cells. Whether or not this actually occurs is not yet established; nevertheless, local reactions in a few patients thus treated seem to warrant a further study and a continuance of its work. The preparation is called Bismuth Diasporal "360," and may be obtained in the open market.

Attention may also be briefly called to the experimental use of glucose as a cancer adjuvant treatment. Our own limited experimentation with this agent does not warrant a conclusion, but we do not believe it to be of sufficient value to continue.

Now to touch upon another matter, which is one of the worst abuses of this intelligent age, the use of heat lamps, friction and medical diathermy upon cancer patients in the hands of irregular practitioners. This is not only deplorable but criminal, and should be prohibited. Visualize, if you please, a slowly growing carcinoma of the surface where all of the patient's protective mechanism, including the neighboring lymphatics, are frantically attempting to destroy the invading carcinoma cells. To such a field is now directed heat, massage, or some other ill-advised procedure, with the result that the local circulation is promoted and the cancer cells are stimulated, nourished, and invited into the recesses of the body to produce metastatic formations. This is also well exemplified in women with breast tumors, who so frequently run the gamut of manipulation by unskilled hands. Metastatic carcinoma of the breast grows fast enough without added stimulation, but such growth can almost be seen to advance from day to day when the unfortunate subject takes the "therapeutic violet ray" treatment or similar hokum from the first-floor "doctors" with "degrees" tacked after their names not obtained in recognized and scientific institutions of learning.

It is neither possible nor desirable in the brief

time allotted this paper to attempt covering the whole cancer treatment field. If in these rambling remarks a few facts are found which will give the cancer student some food for thought, the writer's efforts will be amply repaid.

A fertile field for research is opened in a study of the role of the ductless glands in maintaining the metabolic balance of the human family. It is questionable if this research will ever lead to a cancer cure but it will certainly yield information of profound importance to all mankind.

Reasoning from a biological standpoint, it appears that we can well eliminate the specific cancer germ theory, and employ more wisely the time spent in fruitless research in this direction.

Likewise, the varied attempts to seek out a curative serum appear no longer reasonable. As has been pointed out by various authorities, no specific serum has ever been produced except for a disease which was self-limited and against which the body had the ability to manufacture an antibody or an antitoxin. There is not the slightest demonstrable scientific evidence that cancer has ever produced a self-corrective serum or an immunizing agent of any sort.

The one stubborn factor which may or may not be solved is the indomitable cancer cell. When the secret of this has been wrested from nature, then we may well expect to eradicate cancer from the face of the earth.

We must not forget, however, the painstaking research work of Doctor Maud Slye which demonstrates so vividly the hereditary factor in cancer distribution. Nor must we forget the possibility, if remote, of at some future time breeding the cancer complex out of the human race in the same decisive manner which Doctor Slye has so effectively demonstrated in the mouse family.

Pending the solution of these momentous tasks, our apparent duty is to give to the cancer problem a wide open publicity. If the public at large were as conversant with the situation as the intelligent physician, we might hope to cope with all cancer pathology in its earliest and curative stage. This would perhaps slowly but nevertheless, surely make heavy inroads upon the mortality from cancer, and this appears at the present writing to be the most sensible method of procedure.

I fully believe that with such a campaign, and as effective as that waged against tuberculosis and syphilis, cancer will yield eventually. This will be accomplished only by careful preventive hygiene, by proper treatment as outlined, by an intensive research campaign, and by the whole-hearted aid of the general public in connection with persistent educational and cooperative work by a united medical profession.

1407 S. Hope St.

MENTAL HYGIENE OF ADOLESCENCE*

JOHN W. H. POLLARD, M. D.

EVANSTON, ILL.

Theoretically, there should be but one cause of death—Old Age. Practically a very small percentage of deaths arise from this cause. Disease, in one form or another, steps in and ends the life span more or less prematurely.

Deaths may be classified as Constitutional—arising from conditions which develop within the body; and Environmental—the reactions of unsatisfactory surroundings. The basic science of Public Health (Public Hygiene) is primarily concerned with the prevention of premature deaths caused by environmental conditions. Personal hygiene, on the other hand, is largely concerned with the prevention of premature deaths from constitutional causes. Personal hygiene is, then, the science of the development and maintenance of normal health.

Strange as it may seem, the one subject—namely, how to keep healthy—which every fair-minded person admits should be taught thoroughly, has been largely neglected. With all the persistent agitation for educational reform, there remains, in a measure, the same indifference to the proper care of the body regarding which Herbert Spencer lectured the pedagogic world fifty years ago. (Pyle—Personal Hygiene.)

All knowledge passes into *action* and that knowledge which leads men to better physical lives is a communal as well as an individual gain. The leading kinds of activity which constitute human life are: those which prepare for a direct self-preservation; those which prepare for indirect self-preservation; those which prepare for parenthood; those which prepare for good citizenship, and those which prepare for miscellaneous refinements. All of these activities are inter-dependent and are sub-divisions of the gen-

eral scheme of personal hygiene. Finally, personal hygiene constitutes a series of medical problems which have to do with the proper functioning of the digestive, respiratory, auditory, visional, muscular and central nervous systems. It is, therefore, applied physiology and a proper understanding of certain elemental truths must first be acquired before it can be applied. The natural method of inculcating these truths should be rational education. The literature for the layman pertaining to personal hygiene is in great measure unsatisfactory and irresponsible. Many so-called "health books" are of very questionable authorship, often the compilation of a layman, an inaccurate physiologist, or a moralist of vague opinions, with, unfortunately, a tendency to cater to the sensuous.

Too much stress cannot be laid upon a normal, sane, intelligent mental hygiene regimen. With regard to the brain and nervous system the hygienic problem is a far-reaching one and leads us back even to the period antedating the birth of the child. Heredity may be a factor but fortunately for the educational outlook, the evidence has begun to accumulate that a morbid inheritance is not the inevitably crushing and baneful thing that it has been thought. We come into the world, each one a being of limited capacity, but in other respects free to become what circumstances make us, and responsible, to the extent of our capacity, for our lot. We bring no ticket of leave which stamps us as drunkards or maniacs on probation, but we do bear, in the histories of our ancestors, a certificate that hints by what efforts and by what avoidances we can make ourselves reasonable successes in our respective lines. There is no original sin, and not even, as it seems to me, original propensity, but only original capacity and original limitation, and even limitation is only another name for latent capacity. (Putnam—Not the Disease only, but also the Man.)

Passing over the nervous and mental hygiene period of infancy and the pre-school age, and the school age up to that of puberty, let us pause for a moment or two to consider carefully the reaction of the sex instinct upon the boy and girl.

There is no question that in both sexes (but especially in boys) the psychical effect of puberty often outweighs the physical; hence we begin to observe the real awakening of the "ego," of the condition of self-consciousness, the proper trend of which means so much for the health of the nervous system. It is a period certainly when nervous and mental aberrations are not uncommon, but are we right in attributing them all, as certain authorities are inclined to do, to brain overwork? Such a contention seems wholly unjustified except in rare instances. The root of the evil lies largely in the mawkish sentimentality and artificial modesty which possess a large percentage of parents

*Read before Section on Public Health & Hygiene, Illinois State Medical Society, Joliet, May 21, 1930.

throughout the land, and prevent them from explaining to their children the mental as well as physical significance of the changes which the latter are destined to undergo at this period. The result is, in the case of the girl, that the establishment of the menses often comes as a mental shock which may prove the last straw in the genesis of a nervous breakdown, for which her "studies" have already paved the way. In the boy the reaction is different and frequently far more disastrous, for he, finding himself in the possession of a newly awakened instinct, is often led into habits which may mean little less than absolute mental and nervous ruin.

This subject is well worthy of the serious attention of every parent and teacher. Much ill-considered treatment of the problem has found its way into text-books of medicine and medical writings in general. This, it seems, arises from an undue exaltation of the importance of the direct physical results. Such teaching is dangerous, for the naturally self-conscious youth is imbued by it with the fear of irreparable bodily injury, self-inflicted. A vicious cycle is established. He quickly becomes self-analytical, and by autosuggestion succeeds in bringing about actual physical suffering. The primary factor of moment is, however, the implantation of the morbid fear, and unless this is quickly eradicated, the complete nervous undoing of its victim is in time effected by misguided medical or lay advisors, or by the criminal insinuations of designing quacks, whose villainous publications are constantly flooding the country. The teaching of practical morality is the key to the problem. The responsibility of the entire matter rests primarily with parents and teachers; but to judge from the prosperity of the very lowest and most offensive sort of charlatans and from the large number of persons who, under the scourge of the most pitiable mental anguish, seek the advice of reputable physicians, it would seem that this responsibility, great and significant as it is, rests, in many instances, with appalling lightness. (Courtney—Hygiene of the Nervous System.)

As a director of student welfare and supervisor of university student physical activities covering a period of twenty years I feel that I know, fairly well, the mental and physical reactions of the boy of college age. Often have I found a lad whose interpretation of the sex-instinct was solely that which he had absorbed from his chums in the preparatory school. Often have I been forced to acknowledge that many young men of college age have failed to appreciate their responsibilities to future parenthood. Many have demonstrated pitiable ignorance of the ravages of the social diseases and the possible unfortunate reaction of these diseases upon posterity. Many times have I stood as father confessor to boys who, upon presenting themselves for the

Freshman physical examination, have been found to be suffering from gonorrhea or from syphilis in the contagious stages. More than one student, the victim of self-abuse, has taken me into his confidence and pleaded for assistance in the effort to break himself of the habit. By far the larger percentage of these cases bewail the fact that their fathers or older brothers had not sufficiently interested themselves in their behalf to give them common sense, authentic information pertaining to sex relations. "If my father or my older brother had only 'set me straight' and cautioned me relative to the pitfalls ahead of me I could have avoided all this," said one young man of 18 years who was suffering from syphilis in the secondary stages. A responsibility unfulfilled that resulted in years of mental anguish as well as physical impairment!

Parents whose children are approaching the age of puberty must surely face and recognize the danger signal of adolescence. Every father should talk candidly and intelligently with his sons relative to the wonders of sex and the true place it holds in the human life span. The son's future responsibility to the family should be plainly stated, and the pitfalls of promiscuous intercourse stressed. The father has the confidence of his son. He should be the one to give this information.

Likewise the mother should take her adolescent daughter into her confidence, explain the physiology of the menstrual period, and impress her with the responsibilities of future motherhood.

In closing, my appeal is to the fathers and mothers of this country to make confidants of their offspring and to give them the authentic information relative to the phenomena of reproduction that is their just due. Should the parents feel that they do not have the ability to do this, then the family physician should be consulted and the responsibility turned over to him. "An ounce of prevention is worth a pound of cure." The child is worthy of his heritage.

(Note: This little paper has been hastily developed within the space of a comparatively few hours to meet a program emergency. Quotations have been used freely and at length. I am in thorough accord with the writers quoted. Their own expressions cannot be improved upon.)

THE ULTIMATE CURE OF CANCER*

E. G. C. WILLIAMS, M. D.,

DANVILLE, ILLINOIS

If and When the cure for cancer comes; it will not be the result of an accidental discovery by someone who is trying a little of everything in the hope of stumbling upon the great specific, but it will come as a climax to a definite series of events which surely will come first, and upon which the "Ultimate Cure" must depend.

The first of these contingent events is a more complete knowledge of the chemistry and the control processes in the primary differentiation of embryonic tissue and a knowledge of why after early cell divisions take place certain cells turn their characteristics toward the lining and glandular structures, certain toward connective tissues and others toward coverings, appendages, nervous structures, etc. It is in this primary differentiation of embryonic cells that the characteristics of future malignant growths are determined and it is possible that the anlage of the adult neoplasm takes place in the earliest cell divisions as suggested in the tendency of cancer tissues to dedifferentiate and return to characteristics resembling early embryonic structures.

The second event is a complete study and knowledge of the chemistry of cell metabolism and growth in the adult structures. There is a *why* for every body process and none must be classed as merely natural processes because we do not know the *why*. Multi-millions of body cells perform their work for many years without division or reproduction until something happens that produces the conditions favorable to or demanding mitosis. The cells of muscle fibres have a lifetime of many years and perform their average duties without increase in number, yet after an injury or even by increased use and exercise of their activities, they begin to reproduce and repair the injury or produce more muscle to compensate for the added work. Certainly there must be something in the inherent qualities of these cells that make them react to the conditions produced. If this repair were the result of a systemic reaction to the conditions that demand this proliferation and a systemic urge was sent out then not only the needed cells but all cells of the type all over the body would

start proliferating. This may be classed as further proof of the local rather than the constitutional character of cancer.

The recently published¹ report of the production of granulation tissue in old ulcers by use of p-thiocresol is almost startling in its possibilities. The men who have published these reports have long been working on the chemistry of cell metabolism and find that at the time of mitosis there is present in the cell a change in the sulphhydryl groups and by adding a chemical containing a sulphhydryl in the form of thiocresol mitosis has been accomplished. It has been noted by these men that "wounding the surface cells of a root tip of *zea mays* by scratching with a fine needle instantly illicit the chemical reaction of the sulphhydryl group." Thus the chemical process which seems to be necessary to the growth and reproduction of cells is produced by damaging living cells and their healing process is started immediately. I have asked these men if it is not possible that they are close to the cause of cancer and that in the human body the sulphhydryl group reaction may be produced by mechanical or chemical irritations and that the uncontrollable mitosis of a malignant neoplasm may be engendered. In a reply from Doctor Stanley Reimann, he says: "I believe it is not only possible, but probable, that the sulphhydryl group plays a big part in overgrowth, as you suggest, in mechanical or chemical reaction." This recent work has produced the first break in my belief that we will not find a specific cause for cancer.

Another event which may be classed as an improbable possibility is the discovery or evolution of an entirely new and at present unknown science or application of some undiscovered natural law which may be as revolutionary in our time as the discovery of the bacterial cause of disease was in the last half of the nineteenth century.

A great succession of events might be postulated and imagination given free hand in predicting our future but the three events discussed have appealed to me as being the most obvious points in our progress for the next few years. I am convinced that the future treatment will continue to be local for a local disease and not systemic; that any possible specific will be applicable to the lesion as an infiltration of a chemical agent, or the application of a physical force

*Read before Section on Radiology, Illinois State Medical Meeting, May 22, 1930.

which will produce chemical changes in a lesion that has been *infiltrated* resulting in a specific reaction between the infiltrate and the cancer. This postulate is credited to the ability of x-radiation to alter the physical and chemical form of many substances.

Surely no specific cure can be expected or hoped for until the cause is known and we may still be a hundred years from the cause. Many things we do know and great advance has been made in cancer control through this knowledge. Many points are still in controversy and the element of personal belief and conviction enters the work of each of us, yet not sufficiently to greatly alter our methods of procedure. But I feel that personal belief is important and will influence the extent of our credulity as new points in progress are published. In order that I may stand clear and on firm ground with myself for future work, I have considered each of the controversial points and made a definite statement of my belief which I give to you in the "Creed of a Cancer Therapist" dated as of May 22, 1930.

I Believe:

That cancer is a local and not a constitutional disease;

That it is due to embryonic misplacement of cells, incomplete differentiation of cells in mature structures and developmental failures or malformations;

That it is a dedifferentiation of cells with attempted return to embryonic characteristics;

That cancer growth may be started by disturbing a quiescent state of misplaced cells, by chronic irritation or acute anatomical insult;

That it is not due to any specific infection or virus;

That although it is neither inheritable nor transmissible there may be a familial predisposition;

That cancer is preventable in many cases;

That by reason of the widely different types of cancer we will never have a specific cure in the form of vaccine, antitoxin, extract or chemical agent applicable as a constitutional corrective;

That the search for a cause of cancer may open an entirely new and revolutionary field of science;

That most cancers are curable if recognized early and treated radically and immediately;

That cures will continue to depend upon the complete destruction or eradication of all possible malignant tissue by x-radiation, radium, surgery and electro-thermic methods;

That it is unwise to become overenthusiastic about any one form of cancer therapy and that wisdom lies in the use in each case of the methods best suited to that particular person and condition.

DISCUSSION

Dr. Alden Alguire, Belvidere: I have been interested in cancer for a good many years, and in the handling of cancers of all kinds. What about heredity? In over ninety per cent. of my cases I have found there was cancer in the ancestry even as far back as the great grandfather.

Dr. E. G. C. Williams, Danville: Concerning heredity in cancer, I think the outstanding work, and practically the greatest work in this, has been done by Dr. Maude Sly, and in her work on animals I believe she established the fact they have a definite heredity. In my work I take a very careful family history, and if you will take your own family history I doubt if there is one of you who will find his family free from cancer. I have found in my family history one case of cancer in a great grandparent. But on the laws of heredity, and as we understand heredity, which is the systematic passing on of conditions from generation to generation, so far I fail to find one point of proof of the heredity of cancer. Even in the families where there are many cancers in the history, we find them of different types and of different anatomical locations.

REFERENCES

1. Reimann, Stanley P.: "Use and Reason for the Use of Thio-cresol to Stimulate Wound Healing," J. A. M. A. 94: 1369 (May 3), 1930.

THOSE UNTOLD HARDSHIPS

At a reception in Washington, says the *Boston Transcript*, the lion of the evening was a distinguished traveler and explorer. A lady said to him, "It must have been terrible, your experiences; and you must have suffered untold hardships and privations."

"Well, I can hardly call them untold sufferings and hardships," he explained with a smile. "The fact is, I've been telling them all season to large audiences."

Society Proceedings

COOK COUNTY

CHICAGO MEDICAL SOCIETY

Regular Meeting, Jan. 21, 1931

SYMPOSIUM OF THYROID DISEASES

Carbohydrate Metabolism in Thyroid Disease.....

.....Robert W. Keeton

Changes in Cellular Permeability in Thyrotoxicosis

.....W. F. Peterson

The Interrelationship Between the Thyroid and Pregnancy.....F. H. Falls
 Factors of Safety in the Surgical Treatment of Goiter..... F. G. Dyas

Regular Meeting, Jan. 28, 1931

Mr. Leonarde Keeler of the Scientific Crime Detection Laboratory affiliated with Northwestern University, will speak on "Practical Application of Emotional Changes."

Marriages

THEODORE H. GASTEYER, Wilmette, Ill., to Miss Anna Heilig, Dec. 31, 1930.

JOHN HENRY LINSON to Miss Helen Pauline Satre, both of Chicago, Sept. 13, 1930.

LAURENCE F. ROCKEY to Miss Flossie Prieue, both of Orangeville, Ill., Oct. 11, 1930.

JACOB SAMUEL, Chicago, to Miss Esther Lefkovitz of Oak Park, Ill., Nov. 9, 1930.

ARTHUR E. A. WANDERER to Miss Emma A. Carlsen, both of Chicago, recently.

Personals

Dr. Frank Smithies was recently elected a foreign member of La Société Médicale des Hôpitaux de Paris.

Dr. Maurice A. Bernstein addressed the Chicago Orthopedic Club, January 9, on "Synovectomy of the Knee Joint."

Dr. Ralph C. Hamill was recently elected president of the Illinois Society for Mental Hygiene.

Dr. Gerald Webb of Colorado Springs spoke before the Chicago Tuberculosis Society, January 8 on "Laennec."

Dr. Nathaniel Allison, among others, addressed the Chicago Surgical Society, January 2, on "Arthritis as a Surgical Disease."

Dr. Calvin T. Hood was recently honored by the Garfield Park Hospital officials on completion of thirty-nine years of service with that institution.

Drs. Joseph S. Eisenstaedt, Robert H. Herbst and Harry B. Culver participated in a symposium on urinary calculi before the Chicago Urological Society, January 22.

Dr. Ernest Sachs, St. Louis, addressed the St. Clair County Medical Society, East St. Louis,

January 8, on "Traumatic Injuries of the Brain and Spinal Cord."

Dr. Harvey J. Howard, St. Louis, addressed the Chicago Ophthalmological Society, January 19, on "Research and Postgraduate Projects in Ophthalmology at Washington University."

Dr. Casey Wood, recently of Stanford University, California, has spent the last year in London and in travel in Europe. He has settled for the winter at the Hotel Eden in Rome.

Dr. Margaret W. Gerard has resigned as psychiatrist at the Institute for Juvenile Research to accept an appointment on the staff of the student health service at the University of Chicago.

Dr. Pashupati J. Sarma has resigned as associate in the surgical department of Loyola University School of Medicine and accepted a similar position at the University of Illinois College of Medicine.

Dr. Frank Billings was made an honorary life member of the American Occupational Therapy Association, January 3, in recognition of his work in developing modern methods and wider use of curative occupations for the sick and disabled.

Dr. Lester R. Dragstedt, among others, addressed the Chicago Society of Internal Medicine, January 26, on "Significance of Failure of Reabsorption of Digestive Juices in Some Gastro-Intestinal Disorders."

Dr. Mabel Masten, Madison, Wis., spoke on encephalitis, and Bertha Kaplan on "Parasitic Infections in Chicago" before the Chicago Council of Medical Women, January 9.

Dr. Lucius H. Zeuch gave an address, January 6, in Memorial Hall, Norwegian American Hospital, on "Italy, the Cradle of Scientific Medicine and the Eighth International Congress that Reviewed the Story."

Dr. Ernest Sachs, professor of clinical neurosurgery, Washington University, St. Louis, will hold a clinic in Blessing Hospital, Quincy, February 9, at 9 a. m.

News Notes

—Dr. Bronson Crothers, Boston, addressed a joint meeting of the Chicago Pediatric Society,

the Chicago Neurological Society and the Chicago Institute of Medicine, January 30, on education of patients with cerebral palsy.

—The Chicago Society of Allergy was addressed, January 19, among others, by Dr. Isador Pilot on "Hypersensitiveness in Arthritis Due to Hemolytic Streptococci."

—Drs. Charles H. Eyermann and French K. Hansel, St. Louis, addressed the Peoria City Medical Society, January 20, on "What Every Physician Should Know About Allergy," and "What Every Rhinologist Should Know About Allergy," respectively.

—Dr. Clarence W. Hopkins and George de Tarnowsky addressed the Chicago Society of Industrial Medicine and Surgery, January 7, on "Double Dislocation of the Head of the Femur in the Adult With Recovery," and "Traumatic Injuries of the Bladder and Urethra," respectively.

—Dr. John A. Wolfer, Chicago, addressed the Warren County Medical Society, January 8, on "Diagnosis and Treatment of Carcinoma of the Rectum and Sigmoid," and Dr. William H. Holmes, Chicago, "Modern Conceptions of Nephritis."

—The Chicago Roentgen Society was addressed, January 14, by Drs. Max M. Peet, Ann Arbor, Mich., on "Ventriculography"; Eugene P. Pendergrass, Philadelphia, "Encephalography, Its Indications and Contraindications," and Percival Bailey, "Use of Air Injections in Nervous Diseases."

—At the Chicago Laryngological and Otolological Society meeting, January 5, G. O. Russell, director of the phonetics laboratory, Ohio State University, Columbus, gave a motion picture demonstration of "Normal Interior Laryngeal Functions Which Block the View of the Glottal Lips," and Dr. G. Henry Mundt, Chicago, discussed the audiometer.

—The Lewis Memorial Hospital was formally dedicated January 4. The building, which was formerly the Lakota Hotel, was endowed by F. J. Lewis as a memorial to his wife and offered to Cardinal Mundelein. It is designated as a unit of the Loyola School of Medicine and will specialize in maternity cases under the direction of the Sisters of Providence of Montreal.

—Speakers at the meeting, January 12, of the Chicago Pathological Society were William H. Taliaferro, Ph. D., Dr. Paul R. Cannon and Sarah Goodloe, on "Relation of Splenectomy to the Resistance of Rats to *Trypanosoma Lewisii*"; A. P. Locke, Ph. D., and Edna R. Main, "Copper and Iron Content of the Blood in Cancer and in Pregnancy"; Franklin S. Dubois, "Chronic Bronchitis with Foreign Body (Elastic Fibers) Reaction of the Lungs"; Dr. Ruth Tunnicliff, "Colonies of Hemolytic Streptococci on Chocolate Agar." Dr. Edward H. Hatton presented a case report of an unusual odontoma.

—A breast milk collecting station has been established by the pediatric department of Cook County hospital where mothers are paid for breast milk, which is collected twice daily by a trained dietitian, sterilized and used for the feeding of premature, weak or sick infants. The board of directors of the Cook County School of Nursing has provided funds to pay these mothers. Physicians having patients, mothers with excess milk, are asked to refer them to the pediatric department. Mothers are given a complete physical examination, including a Wassermann test, the babies are examined and the home conditions are investigated.

—The Chicago Gynecological Society was addressed, January 16, by Dr. William M. Thompson on "Endometriosis of the Umbilicus"; Dr. Andrew C. Ivy, Carl Hartman, Ph. D., and Dr. Arthur Koff, "Contraction of Monkey Uterus sub Partu"; Dr. Frederick H. Falls, "Observations of the Use of Lugol's Solution in Hypertension Gravidarum," and Dr. Robert M. Grier, "Fetal Mortality."

—Alpha Omega Alpha of the University of Illinois College of Medicine, annual lecture will be given on February 18, 1931, by Dr. Walter Beering of Des Moines, Iowa, National President of A. O. A.

—On January 21, Mr. Tom Jones addressed the Medical History Club of the University of Illinois College of Medicine on "Modern Art."

—The French Lick Springs Hotel Co., French Lick, Ind., announce to the profession that, effective March 1, 1931, Dr. William Edward Fitch will be Medical Hydrologist and Medical Director. Dr. Fitch, for many years past, has

been Medical Director of the Bedford Springs, in Pennsylvania.

—At the Clinical Conference Monday, January 19, of the Medical Staff of the Methodist Hospital of Central Illinois, Peoria, the following program with presentation of cases was given: 1. Melanosearcoma, Dr. S. M. Miller. 2. Intestinal Obstruction, Dr. R. Sutton. 3. Osteitis Fibrosa, Dr. J. Connell. 4. Postmortem Brain Specimen from Cephalography Case, Dr. Orville Barbour.

—A dinner was given by Dr. Max Thorek in honor of Professor Magnus Hirshfeld, head of the Institute for Sex Research of Berlin, Germany. About one hundred physicians and dignitaries of the various professions were present. The affair was given in the Crystal Room, at the Blackstone Hotel, on Monday evening, January 12, 1931. Among the principal speakers were: Dr. John R. Harger, President-elect of the Chicago Medical Society; Dr. Morris Fishbein, Editor, the Journal of the American Medical Association; Honorable John Gertin, Austrian Consul; Dr. H. F. Simon, German Consul, and others. After leaving Chicago, Professor Hirschfeld will continue his lecture tour in California, Hawaii, Japan, China, and return via Siberia, stopping off at Moscow to arrange for the forthcoming Congress on Sex Research.

—Dean W. B. Day of the School of Pharmacy, University of Illinois, addressed the Medical History Club of the College of Medicine, on January 7, subject: "The History and Pharmacy of Some Important Drugs Used in Medicine."

Deaths

HENRY G. ARMBRUSTER, Steeleville, Ill.; Homeopathic Medical College of Missouri, St. Louis, 1881; aged 73; died, Dec. 3, 1930, of nephritis.

RANSOM MOORE BARROWS, Chicago; University of Michigan Medical School, Ann Arbor, 1877; Hahnemann Medical College and Hospital, Chicago, 1884; aged 81; died, January 2, in Evanston, of cerebral hemorrhage and arteriosclerosis.

JOHN FRANCIS BESELER, Chicago; Jenner Medical College, Chicago, 1908; member of the Illinois State Medical Society; aged 51; died, Dec. 24, 1930, of hypostatic pneumonia, acute dilation of the heart and cerebral hemorrhage.

CHARLES BOEHM, Highland Park, Ill.; Bennett Col-

lege of Eclectic Medicine and Surgery, Chicago, 1895; aged 78; died, Dec. 6, 1930, of chronic myocarditis.

EDWARD WYATT CANNADY, East St. Louis, Ill.; Washington University School of Medicine, St. Louis, 1902; president and for many years member of the board of education; on the staff of St. Mary's Hospital and formerly on the staff of the Christian Welfare Hospital; aged 57; died, Dec. 13, 1930.

JOHN W. CANTRALL, Rochester, Ill.; St. Louis College of Physicians and Surgeons, 1894; member of the Illinois State Medical Society; aged 67; died, Dec. 22, 1930, of heart disease.

WALTER G. DU FOUR, Batavia, Ill.; Northwestern University Medical School, Chicago, 1900; aged 65; died, Dec. 12, 1930, of cerebral thrombosis.

ARNIM CARL R. ECKE, Chicago; Rush Medical College, Chicago, 1903; member of the Illinois State Medical Society; aged 56; died, January 7, of chronic myocarditis, nephritis and arteriosclerosis.

GEORGE S. EDMONSON, Kankakee, Ill.; College of Physicians and Surgeons, Chicago, 1896; member of the American College of Surgeons; past president of the De Witt County Medical Society; formerly mayor of Clinton, superintendent of the Kankakee State Hospital; aged 59; died, January 11, in the Illinois Central Hospital, Chicago, of septicemia, following amputation of his right leg on account of gangrene.

MARTIN EUGENE FULLER, Chicago; National Medical University, Chicago, 1905; aged 63; died, January 7, of cerebral hemorrhage and paralytic ileus.

HENRY BIXBY HEMENWAY, Springfield, Ill.; Chicago Medical College, 1881; for more than eleven years medical assistant in the division of vital statistics of the state department of public health, and formerly district health superintendent; author of "Healthful Womanhood and Childhood," "Legal Principles of Public Health Administration," "Essentials of Veterinary Law," and others; aged 74; died, January 1.

ROSS EDGAR HUNT, Belvidere, Ill.; Northwestern University Medical School, Chicago, 1925; on the staff of St. Joseph's Hospital; aged 29; died, Dec. 20, 1930, in the Wesley Memorial Hospital, Chicago, of septicemia.

ANNA CORNELIA LANDMAN, Chicago; Jenner Medical College, Chicago, 1905; aged 56; died, Dec. 13, 1930, in the West Suburban Hospital, Oak Park, Ill., of carcinoma.

HARRY AUGUSTUS LITTLEFIELD, Peoria, Ill.; Marion-Sims College of Medicine, St. Louis, 1899; served during the World War; aged 56; died Dec. 16, 1930, of heart disease.

IRVING ANGEL PORGES, Chicago; University of Illinois College of Medicine, Chicago, 1903; aged 48; died Nov. 12, 1930, of chronic myocarditis and nephritis.

HARRY ALEXANDER WARE, Chicago; Rush Medical College, Chicago, 1898; on the staff of the Illinois Masonic Hospital; aged 55; was killed January 9, at Miami, Fla., in an aeroplane accident.

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A few unsolicited letters

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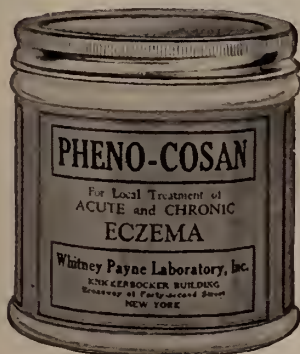
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CONTENTS

Editorials (See Extended Table of Contents For Titles) 161

ORIGINAL ARTICLES

- Diphtheria and Scarlet Fever. *Arlington Ailes, M. D., La Salle, Ill.*..... 183
- X-Ray Examination of the Appendix. *James T. Case, M. D., Chicago*..... 191
- Treatment of the Common Cold in Children. *William J. Corcoran, M. D., Chicago*..... 197
- Personal Hygiene and Public Health. *G. Koehler, M. D., Chicago*..... 200
- Abdominal Pain in Children. *John F. Carey, M. D., Joliet, Ill.*..... 202

- Histopathology of Holes in the Macula. *M. D., Chicago*..... 207
- Case of Bone Formation in the Choroid. *S. J. Meyer, M. D., Chicago*..... 210
- The Solitary Choanal Polypus. *S. M. Morwitz, M. D., Chicago*..... 213
- New Method of Anesthesia for Incision of Peritonsillar Abscess. *M. Reese Guttman, M. D., Chicago*..... 217
- Optic Neuritis, Etiology and Treatment. *Meyer Wiener, M. D., St. Louis, Mo.*..... 219
- Medicine and the Eye. *Leo L. Mayer, M. D., Chicago*..... 223
- Fascia Sutures in Repair of Inguinal Hernia. *William J. Pickett, M. D., Chicago*..... 227

(Continued on Page 10)

EIGHTY-FIRST ANNUAL MEETING AT EAST ST. LOUIS, MAY 5, 6, 7, 1931

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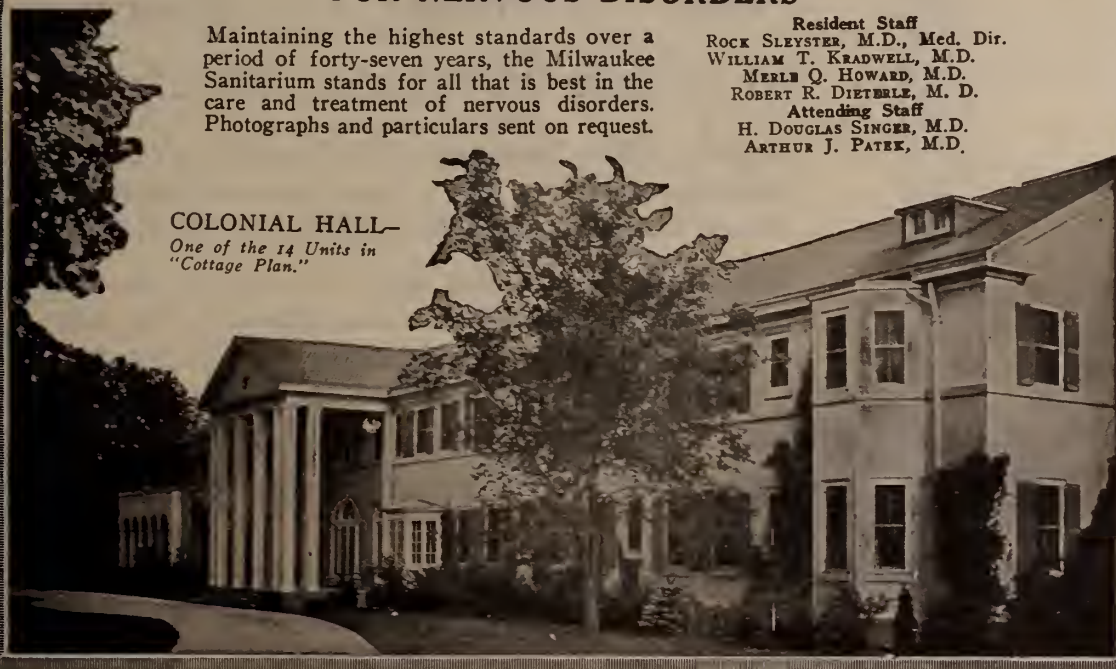
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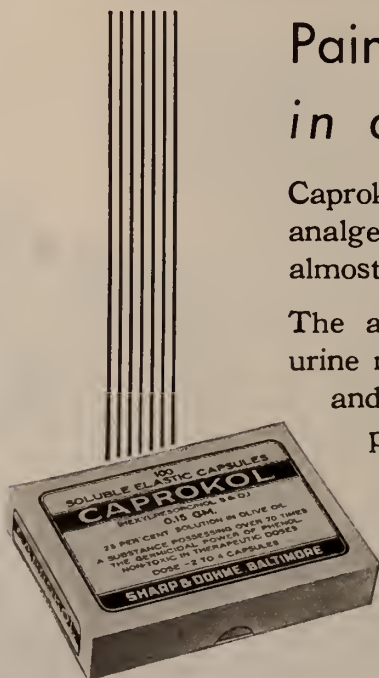
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Editorials

THE CREDIT IS DUE THE MEDICAL PROFESSION, NOT LAY ORGANIZATIONS

Statistics revealing the average reduction of the death rate in the U. S. registration area by more than 36 per cent in the last thirty years would seem to convince the most presumptuous body of lay investigators that the medical profession really does attend to its business in relation to the moot question of prophylaxis and public education.

Some ailments of the human race have experienced an even higher percentage of reduction than that. While it can be said in all verity that the national death rate has been cut nearly two-thirds there are mortality figures from some causes that show that some scourges have been practically wiped out. This results of course from scientific prophylaxis based upon scientific research and scientifically administered.

In all truth it must be confessed that lay-dictated legislation had nothing to do with it, nor did any so-called relief measures based upon false ideas of the good arising from that socialized menace—state medicine.

To be specific in a few instances it must be stated that the mortality in typhoid fever has had a reduction of ninety-three per cent and the mortality from diphtheria has been reduced over forty per cent.

Antitoxin and toxin-antitoxin, resulting from the sacrificing labors and scientific skill of scientific men did the work for diphtheria. No lay dictated law had any hand.

Filtration and chemical treatment of water, pasteurization of milk, and control of carriers—all systems of prophylaxis, and all the direct outgrowth of scientific medical instruction—knocked the strength out of typhoid and paratyphoid fever.

After the doctors had done the work they received to some extent a legal backing. But it was the law and the laity doing the work that

the doctors had laid out for them, *not doctors doing the work that the law and the laity had laid out* that made for success in this endeavor.

If a more specific instance is needed consider what inoculation does for mass examples. Consider for instance the army's experience with inoculations, or serum vaccinations.

In 1900 the army showed a death rate from enteric diseases of 34 per 100,000. This the medical profession managed to reduce by prophylaxis and by inoculation until in 1928 the figures stood at 4.9 per 100,000.

In military life the reduction offers still better food for thought. During the first two years of the Civil War the death rate from typhoid fever stood 1,961 for every 100,000 soldiers. During the first two years of the World War this was reduced to only *five* among every 100,000 soldiers!

From tuberculosis the death rate has been reduced from 195 per 100,000 in 1900 to only 76 per 100,000 in 1928. Chiefly among girls and young women and at the ages between 15 and 24 the least improvement has been shown.

Infant mortality having been reduced from 160 per 1,000 births in 1900 to 65 now shows nearly a sixty per cent cut. It is noticeable too that in states not having the Sheppard-Towner Act the infant mortality reduction was the greater.

Summed up this means that during the last thirty years the general death rate has been cut from 17.8 per 1,000 population to 11.4. Another way of figuring this is to remark that this means an increase in life expectancy from thirty years in 1880 to fifty years in 1925, but even yet the preventable expense of illness and affliction to tax-payers can be reduced still further if such reduction methods are left to the sane and scientific handling of competent medical men.

Deaths from tuberculosis alone are estimated to cost the taxpayers of the United States more than \$1,500,000,000 annually. To care for the three major groups of sickness is another expense each year of \$927,000,000 plus; \$800,000,000 for tuberculosis care; \$90,000,000 for heart disease and \$37,000,000 for the physically handicapped. Added to the fact that in the United States it is estimated that there are 700,000 persons so crippled that they cannot earn a living; as well as 300,000 and more mental defectives; 75,000

blind, and 45,000 deaf and dumb, it can be decided that from a financial standpoint *alone* it behooves the nation's doctors to continue to reduce the number of sick and ailing and to keep down the death rate. In the five years between 1924 and 1929 the monetary value of a new born boy's life was increased, thanks to lowered infant mortality, from \$7,523 to \$9,333.

UNUSUAL PROGRAM OF THE SECTION ON PUBLIC HEALTH AND HYGIENE AT THE EAST ST. LOUIS MEETING

To the Profession of Illinois:

Those of you who were privileged to hear Dr. Norbury's address on Mental Hygiene at the meeting in Joliet last year were undoubtedly impressed by the magnitude of this problem in our state. In view of that fact the Section on Public Health and Hygiene have arranged for a very comprehensive symposium for the East St. Louis meeting in which by address, clinical demonstration and scientific exhibit, it is hoped to present the subject in so complete a manner that it will amount to a postgraduate education along these lines. The program as arranged is as follows:

Dr. Frank G. Norbury—Mental Hygiene in the Home.

Dr. Groves B. Smith, Director of Beverly Farm—Feeble-minded in Illinois.

Dr. Meyer Solomon, Psychiatrist of Municipal Court—Modern Psychiatry, Criminology and Public Health.

Dr. Chas. F. Read—Facilities for Treatment of Mental Disease and Cost.

Dr. Ralph C. Hamill—Diagnosis-Clinical Demonstration of Classes of Mental Diseases.

Dr. Chas. P. Emerson, Dean and Professor of Medicine, Indiana State University—Mental Hygiene.

Dr. Sidney D. Wilgus, State Alienist—Heat Therapy in Paresis.

Margaret McGreevey, R. N.—Value of Bed-side Nursing in a Public Health Program.

Dr. Roswell T. Pettit—Public Health Aspects of the Cancer Program.

Dr. D. D. Monroe, Edwardsville, Ill.—Tuberculosis from the Hygienic and Public Health Standpoint.

Dr. H. J. Shaughnessey—Some Experimental Work in Anterior Polio-myelitis.

Dr. Henry R. Krasnow—Aspects of Medical Quackery.

Dr. A. J. McLaughlin—Trends in Public Health Discussant—Isaac D. Rawlings, M. D.

Dr. J. C. Riggin, Ex. Secretary American Heart Association—Heart Subject.

Dr. H. A. Orvis, American Social Hygiene Association—Congenital Syphilis.

This advanced notice of our program is published with the hope that it will stimulate among the membership an interest in the subject that will be reflected by an unusually free and correspondingly valuable discussion at the meeting.

(Signed) Dr. Chas. H. Miller, Chairman,

826 East 61st Street,

Chicago, Illinois.

Dr. Arlington Ailes, Secretary,

La Salle, Illinois.

SCIENTIFIC EXHIBITS AT THE EAST ST. LOUIS MEETING

The Illinois State Medical Society will have an unusual appeal to all exhibitors this year. More room is available for exhibits than at previous meetings. The Society is planning to have an unusual large number of interesting scientific exhibits at the meeting,—these of course must be free from advertising and must have a scientific interest to all members.

It is requested that members of Society, Hospitals, or Medical Schools desiring to send interesting exhibits get in touch with the Secretary, Dr. Harold M. Camp, Monmouth, Illinois, at the earliest possible moment, giving an outline of materials which they desire to exhibit so that they may be passed on by the censoring committee of the Society, at once.

The American Medical Association will have an unusually fine exhibit at this meeting, and arrangements are being made for a number of other large exhibits which have not previously been shown at the annual meetings of the Illinois State Medical Society.

It is hoped that all interested in scientific exhibits will make immediate arrangements so that they can be shown to the members in attendance at East St. Louis on May 5th, 6th, and 7th, 1931.

ABOUT NINETY PER CENT. OF THE HOSPITALS OF THE UNITED STATES ARE NON-PROFIT INSTITUTIONS

There are seven thousand hospitals in the United States containing 900,000 beds, representing an investment of more than three billion dollars. The hospital is fifth in the list of industries from the standpoint of capital investment. About ninety per cent. of the hospitals are non-profit institutions; they cannot be considered a business but a service institution as important to the community as a school, police, or fire department. They serve a scientifically trained medical profession in the care of all people regardless of their special or financial standing, they are therefore public agencies and come under the head of public improvements.

Most people think of the general hospitals in connection with the care of medical and surgical conditions, but statistics show that more than one-half of our hospital beds are in mental institutions.

Hospitals rank as the fifth industry in the United States from the standpoint of capital investment. The average person is interested in the hospital only when himself or a member of his family is forced to make use of one. One out of ten of our population uses the hospital each year.

A COUNCIL OF MEDICAL ECONOMICS OF THE A. M. A. IS THE NEED OF THE HOUR. THIS COUNCIL WILL BE ONE OF THE MOST IMPORTANT UNITS OF THE A. M. A.

History of therapeutics contains no sadder instances than of the proper drug administered in an improper way or under unindicated conditions. Excellent, yes even essential as is the idea of the creation of an A. M. A. Council on Medical Economics, if this bureau is not installed with the basic inherent idea kept in mind it will be useless, and even dangerous.

This purposed council will be to the medical profession what the various bureaus of public relations are to large corporations and industrial organizations. It will act as a clearing house for the educational covenanting of the laity and the profession. To function efficiently it will require at its head a medical economist who will devote the necessary time for a competent

salary to this most drastically requisite work. From personal experience it is only right and just to say that the man for this important position shall be of the profession rather than of the laity. Unfortunately the laity has been tried and found wanting as the medium between the public and the scientific mind. The able layman cannot seem to attain to the scientific point of view or the scientific necessity for that perspective. There are in the profession able men whose practice of medicine or surgery has been supplemented so as to include daily dealings with the public mind in the mass. From this group the director or head of the council should be selected. This is a prime essential if the campaign of lay education is to be carried on with success and with respect to the varieties and dignity of the profession as well as to the highest degree of public welfare.

Installation of a council of Medical Economics will be found to be the most efficacious of methods of disposing of the army of quacks, charlatans and cultists as well as of the lay dictation of the practice of medicine that threatens to engulf both the profession and the public in a whirlpool of communistic, inexpert and retrogressive administration of the sacred science of medicine.

For the benefit of those who have not kept in touch with this purposed council of medical economics for the general public, let it be remarked that at the Detroit meeting of the A. M. A., Dr. J. B. Harris of California submitted a resolution from the California State Medical Society providing that such a council on economics should be established. Reference committee on reports of officers recommended that the "board of trustees put the principle into effect by the creation of a bureau of medical economics."

From the recommendation's functioning will result a forum of investigation and data collection and source of later distribution of these findings to the everlasting power and glory of the science of medicine.

This campaign of enlightenment from the medical profession to the general public has long been needed. Some of the iniquitous and anti-scientific legislation upon the statute books of the country would not now be handicapping the practice and science of medicine were it not that the public has for years been under fire from an

educational campaign composed of false hypotheses and broadcast by cultists, fanatics and politicians seeking to use the mother profession as a catspaw to drag their own chestnuts from the fire. There has been too, a large group of sincere and earnest persons whose adherence to false leaders, unwitting though this loyalty is, has caused them to serve false gods.

The Great God Jove of the medical profession has been nodding and that to its own undoing.

False doctrines, false assumptions and rank misrepresentation of the medical profession's achievements; of its attitude to the public and to the public mind as well as of its inherent wisdom and competency in its chosen line, have followed this indolent catnaping.

Month after month the newstands, library tables of homes all over the land and of institutions, are filled with periodicals containing cleverly written articles totally and absolutely at variance with medicine and its works. In some instances this misrepresentation from phrase writers has reached the stage of fiction, bearing poisoned and invidious attack upon this self-sacrificing science in the sugar-coated story that appeals to the imagination and impresses the mind. One such appeared within the year in one of the five cent magazines claiming one of the largest weekly circulations in the world. In "Liberty" was published a story garbling what can, does or might happen in a supposedly well regulated institution. This same magazine has also run repeated criticisms of the faith, works and results of the medical profession that would not stand up before a fair jury of well informed persons.

Nor is this magazine alone in this trespass upon the rights of an ancient, an honored and an humanitarian profession.

Literary Digest, Ladies Home Journal, Good Housekeeping, Harper's Magazine, especially for November, 1930 and February, 1931; Delineator, Woman's Home Companion, the Forum and the Survey-Graphic and many others all have published, especially within the past year, one or several articles that grossly misrepresent or falsely educate the public mind along questions where lay judgment is at once a peril and a menace.

A system of "follow-up" by personal approach supplemented by correspondence and printed publicity is one of the most effective efforts of

the public relations department of one of the most invidious of the pseudo-medico-religious cults. In this respect the medical profession would do well for once to take a leaf out of the cultist's book. Let a single printed word or phrase disparaging to this cult appear and be brought to its attention and immediately the war is on. First come callers in person to demonstrate that the offending editor has sullied "the Truth." Next is a barrage of correspondence, suave but insistent and persuasively suggesting such reparation as apology, retraction and even a right-about face opinion on the grounds that the editor was "misinformed."

Specifically explained the ultimate request is that in the same medium as the offending matter appeared, that this cult shall be allowed as much space for self justification through a statement of what the cult thinks to be the truth.

As a whole the medical profession has let propaganda disparaging to its good name and good work go unchallenged in scores of the leading periodicals of the United States.

Here is where the director of the council of the medical economics finds an urgent task, long awaiting the skill of an understanding hand and gifted mind. Each attack against the aims, ideas, and judgment of ethical medicine heard over radio, from the lecture platform or in the public press demands not only an answer but a direct positive refutation of its unjustified statements that are contrary to facts.

The printed word is but word of mouth made eternal and undeniable. This should be borne in mind both because of its benefits as well as for its malevolence. "What has passed your lips is never your own." It behooves the trustees creating this council to see that it chooses for its representative both a member of the profession who knows medical economics thoroughly, who knows what he must say to conform with the ideals and essentials and ethics of the profession, and how to get his message over to a public. This carrying a message to Garcia will not be any facile task. It has been delayed too long. But the slogan of immediacy must be "Up men and at them," even if the methods of dissemination include a direct adaptation in some instances of the cultist system with which to repel or at least to divert attacks.

This council will be one of the most important units of the great A. M. A. It will act as the

envoy plenipotentiary of the medical profession to the general public from private patient to public philanthropist and lawmaker.

THE VERY PROTECTION DR. GLENN FRANK WISHED TO ARRANGE FOR, WAS ARRANGED AND FUNCTIONING LONG AGO. MEDICINE IS THE MOST SELF DESTRUCTIVE OF ALL SCIENCES

State socialism masquerading under the name of state medicine is an unlicensed daughter of joy that fools not at all the ethical medical profession no matter how gracefully she hoodwinks the uninformed or misinformed man in the street.

For some time the profession at large, by organization and by individuals, has become seriously at work considering those economic factors that keep up the high cost of medical education; increase the cost of care of the sick and ailing, and in utter defiance of all the humanities and of all of the inherent rights of personal economics, destroys the very living of those untiring public servants, members of the ethical medical profession and that will in the end make them unfit for service.

Medicine is the most self-destructive of all the sciences by which men hold place in the economic life of civilization. To be a good doctor in every sense of the word a man must teach a citizenry how to keep from falling ill, how to gain health and how to retain it.

In other words a physician worthy of the name is continually undermining the very ground upon which he needs must walk.

Yet in the very face of this knowledge the medical profession continues to do the utmost best for the public health—and the medical profession almost to a man is unanimous in its ideas that the worst malady that can affect a nation is state medicine, or governmental controlled medicine, because this is, in the first, last and even middle analysis nothing less than the advance guard of socialism.

Considering that at great expense, much time, and even greater trouble the medical profession for over twenty years has been devoting itself to a solution of those problems that involve the economics of the profession it is somewhat surprising to have a complete outsider face one of the most learned bodies of professional men in

the country and tell them what they should do.

The socialistic tendency to refer all dilemmas to Washington as if Moses the great lawgiver sat there on the Mount and had divine inspiration, or as if the Delphic oracle functioned once again, would be ridiculous if it did not bear in the train of its absurdities such a load of menace and calamitous evil for an unsuspecting and ignorant people.

It is more than unfortunate that Glenn Frank, president of the University of Wisconsin, should state publicly that there is even a possibility that the solution of national health problems lies in governmental control of the practice of medicine. A year has passed since Mr. Frank informed the American College of Surgeons at its convention that the outstanding need of the profession was the "education of the public to a program of disease prevention" if the profession would not witness the elimination of the private practitioner and the taking over of medical practice by "other agencies"—i. e. the government or lay corporations practicing medicine and the like.

During the twelve month just ended these ideas of Glenn Frank have sprouted in many a community. Flourishing like the proverbial bay tree they take into no consideration the fact that for centuries physicians have been doing exactly the thing that Glenn Frank recommended—trying to teach the public how to keep itself well, and how to prevent disease in itself, and in the individual.

Especially in the last quarter of a century has this work of prophylaxis been going on. Not to make an example of Glenn Frank, but because his viewpoint is so common among men, women and institutions who for the first time have heard of prophylaxis and so think their discovery an original one, it might be well to glance in resume at the tenets set forth by Dr. Frank.

Now in part, said Glenn Frank in addressing the American College of Surgeons in reference to state medicine. "The prevailing attitude actually puts a premium upon disease rather than health. In the main, doctors still secure their income from curing sick folks, not from advising well folk how to keep well. But until the people are educated away from an attitude that obliges doctors to make the major part of their income from attending cases of sickness, our only hope of a healthier nation—unless we are to go over bag and baggage to state medicine

—lies with the unselfish doctor who will consciously reduce his income by foisting upon sick patients health advice that may keep them from falling sick again." Where is the ethical doctor who has not been doing that all along?

"This change in public attitude can be brought about in one or two ways," continues Mr. Frank. "First by a deliberately organized and persistently promoted nationwide educational campaign by the physician, or by a vast high-powered machine of state medicine or its equivalent."

Now, what do you think of that? Does Glenn Frank seem unbiased?

Evidently Mr. Frank has not taken the trouble to find out what the medical profession is doing to meet these problems he mentions. The American Medical Association and the State Societies have been talking about the "Periodic Health Examination" and showing the public how such an examination will reveal certain defects before they become serious. Why has the medical profession promoted the Pre-School Child Examination, if not for the good of the child and the public in general? These examinations bring in much less revenue to the physician than long drawn out illness and also more professional gratification. Why has the medical profession talked so much about the early danger signals of cancer? Prophylaxis, prophylaxis—that is now and long has been the profession's—aye hourly watch word.

Many of the state societies are carrying on a very definite program of education for the laity. In Illinois we are sending hundreds of speakers every year to women's clubs, men's clubs and to practically all lay groups in the state. Such lectures are for the purpose of advising *well people how to keep well*. The medical societies are spending money on these programs. We are trying to keep the public informed through the right kind of educational articles in the newspapers, through health poster exhibits and moving picture films.

Illinois did not accept the Sheppard-Towner Act—yet we have a low infant and maternal death rate compared to some states which accepted this Bill. The medical society of the state has devoted portions of its annual meeting to obstetrical papers. It has sent obstetricians to the component county societies to give practical papers. It has worked with the State Depart-

ment of Health in making a study of the infant and maternal statistics in some counties.

Glenn Frank goes on to say that "As a general principle I dislike to see any activity fall into the hands of the government. That applies to any activity if such can be administered equally well or better by the trade or profession to which the activity logically belongs. Society never faces the dilemma of choice between an inner or outer control of its fundamental services. I prefer inner control for the reason that, as modern society becomes increasingly complex and technical, the man on the job should be better equipped for the job than the man on the sidelines. It is, I think, an intelligently progressive policy to consider government control of fundamental services only when inner control breaks down or plays truant to its responsibility."

The medical profession is standing together. It is trying to work out its own problems. The Committee on the Cost of Medical Care which has the co-operation of the American Medical Society is endeavoring to secure facts and figures which will help solve this tremendous question that affects us all. The public cannot make such a survey. Nor could it use it if it had it.

In Illinois, the Chicago Medical Society has even gone so far as to outline and arrange for lectures to the senior medical students and the interns on such subjects as medical economics, medical legislation, and medical organization.

Now, a great many persons who may feel, as did Glenn Frank, that the medical profession has been, was and is neglecting a patent simple remedy for a patent simple defect surely need to be set right on this question. The medical profession is ever alert and updoing for the best interests of humanity and human problems. The very protection Glenn Frank wished to arrange for, was arranged and functioning long ago.

DR. EDWARD H. OCHSNER IS PREPARING A BROCHURE ON THE PROPER DISTRIBUTION OF WEALTH

Dr. Edward H. Ochsner, Chicago's notable surgeon, an outstanding authority on medical economics, is engaged in the preparation of a brochure on the distribution of wealth.

A basically sound article along the lines indicated is timely. Few men, if any, are as quali-

fied to make such a digest as is Dr. Ochsner. In economics, as well as in medicine, Dr. Ochsner stands accredited as an expert. His research and analysis in chrematistics cover conditions existing both at home and abroad. His dissecting eye and capable judgment will interpret for the less informed the salient inefficiencies of such apologetic remedies for economic evils as the Dole system current in England; compulsory health insurance in Germany; and other distorted ideas of pseudo brotherhood of wealth. Among these last must be mentioned the installation in the United States of institutions that aim at the destruction of self respecting citizenship while seeming to dispense civic benefaction. Most glaring of these evils are embodied in those philanthropies that find expression in paternalistic measures against the ethical practice of medicine. The majority of these endeavors are thoroughly socialistic in nature especially such efforts as the endowment of huge foundations for the free medical care not only of the poor but also of the well-to-do. Isn't it odd that those who advocate such philanthropy among those who have medical bills to meet have never gained their wealth from the practice of medicine but rather from commercial pursuits. It seems never to occur to these would-be philanthropists to return their wealth to the sources from which it has come providing by endowments through which the well-to-do, let alone the poor, can obtain free coal, clothes, or housing. The man who makes his money from a coal mine if he wants to give it away should give away free coal instead of free medical care to those well able to pay.

MEDICAL SOCIALISM PROMOTES WHOLESALE MALINGERING

The A. M. A. regular London correspondent under date of August 16, 1930, has the following to say relative to medical socialism in relation to wholesale malingering. We quote:

MEDICAL SOCIALISM PROMOTES WHOLESALE MALINGERING

All socialistic attempts to make the community to what individuals should do for themselves have proved failures. The lesson may be read in the failure of the communal system of the pilgrim fathers, tried after they landed in America, as well as in Russia today. Our "national health

insurance" is a gigantic scheme of medical socialism. Here is the report of the cautious official of the ministry of health, anxious not to say too much. "It is difficult to avoid the presumption that the habit of making unnecessary claims has set in and has steadily grown." Attempts are made by labor politicians to blink this fact. In an editorial, the position is revealed by the *Birmingham Medical Review*: "The habit of making unnecessary claims is well known to every panel doctor. In a way he is responsible, for he writes the certificates on which the claim is based. But, poor devil, he is in an impossible position. Authority has created the position. Aided by Authority, the suppliant for benefit holds the whip hand every time. He can demand the certificate with the threat 'Give me what I want or I'll change my doctor.' The highbrow people with fixed official salaries shake their heads when told that panel doctors cannot afford to resist doubtful claims. But the panel doctor knows from much painful experience that the happiness of himself and his family must depend on whether he is or is not popular with the insured population. And popularity depends only very slightly on professional capacity; almost entirely on willingness to accede to demands. The man who will deal out prescriptions and sickness certificates without questioning is popular. He gets the big panel. His more particular brother finds his panel dwindling. The newspapers have been trying to show that the panel patient seeking a rest is a model of everything a patient should be; that his physical condition is undermined by unemployment and consequently he is entitled to sickness benefit. It is not true." This may be compared with the experience of Germany, the pioneer of medical socialism. Dr. Erwin Lick, in his book, "The Doctor's Mission," says that the German system of medical insurance has promoted wholesale malingering to obtain incapacity payments. Again, in New Zealand the proposal to introduce medical insurance is opposed both by the profession and by the public. A leading journal, the *Dominion*, says: "It is not only that great bureaucracies grow up and fatten on such schemes, but that the so-called beneficiaries are morally debauched, losing self-reliance and independence."

DR. CHARLES B. REED TELLS THE TRUE STORY OF LADY GODIVA

Four scintillant rainbow gems from the brain of that distinguished litterateur, Dr. Charles B. Reed, appear in an especial, numbered autographed edition of nine hundred and fifty copies. Under the title of "The True Tale of Lady Godiva," Dr. Reed presents to his public, not only this whimsical development of the famous British legend, as narrated by "The Antiquarian," but also from "A Gentleman of the Cloth," the story of "The Tomb of the Prophet," from "The Missionary," the story of "The Porcelain Cup," and the Indian legend of the Lake Superior region, "The Green Plume."

Dr. Reed's mother, the late Elizabeth Reed, was one of the most famous women of this and of her own generation where occult research and theosophical studies are concerned. Some of his mother's esoteric subtlety seems to have become the legitimate heritage of her richly endowed son. The stories are unforgettable, poignant and pleasing. Perhaps of them all "The Tale of the Prophet" will be most likely to please the largest audience.

As unique as the savour of the volume, is its dress. The Bodleian Press designed and printed the 94 pages on hand made paper. The frontispiece and decoration are from the hand of the inimitable Allen Philbrick, and the binding boasts the exceptional craftsmanship of Samuel Zonne. Of marbled paper in rainbow hues as emphatic as the clever tales within, the book cover is backed by dark green cloth on which runs a rich design in heavy gold leaf. Announcement is made that plates and type have been destroyed and that no future editions will be published. For sale by subscription only, the volume demands attention for its literary artistry as well as for its naive expression of the storyteller's craft.

A SPECIAL NUMBER OF RADIOLOGICAL REVIEW

The March, 1931, issue of *The Radiological Review* (Chicago) is devoted entirely to Radium, and is the fourth annual "Radium Number" of this publication.

All the articles are written exclusively for this issue, and collectively, they can be considered to present the present status of Radium Therapy as practiced in this country. The presentations

are from among the leading radium therapists of America and include such names as Healey, Levin, Kaplan, Eller and Fox of New York, Simpson of Chicago, Quigley of Omaha, Withers of Denver, Keith of Louisville, Murphy of Minneapolis, Bowing and Fricke of Rochester, Minnesota, et al.

Interest in radium is not on the wane, but on the contrary is becoming more firmly established in our armamentarium. While it is true that radium is useful in a comparatively small number of afflictions to which the human body is heir, it is so effective that it is truly "invaluable." Who will deny the remarkable results achieved by radium in the treatment of skin cancer, menopausal uterine hemorrhage, carcinoma of the cervix, and certain types of nevi?

DR. W. J. MAYO OPPOSES LONG PRE-MEDICAL WORK

"The present system of medical education is faulty in that it consumes too much of the student's time." So declared Dr. William J. Mayo of the Mayo clinic, Rochester, Minn., in a recent address before physicians attending the annual congress on medical education, licensure and hospitals under auspices of the American Medical association at the Palmer house, Chicago, Ill.

"The period of from two to four years of university study, required of the student before he begins his medical course, dulls the mind and leaves the physician at the comparatively advanced age of 30 years before he begins practicing," Dr. Mayo pointed out. He advocated a substitution of the four quarter system to save the student two years or more in his course.

Dr. Mayo questions the wisdom of the prevailing system of examinations and the inflexible curricula the medical schools offer.

"The body of medical knowledge is so large that an almost superhuman intellect is required to assimilate it," he declared. "Yet the medical student feels he must be sufficiently familiar with various laboratory and clinical specialties to pass examinations in them."

"Unconsciously the instructor wields the medical degree as a club to compel the student to remember the subjects taught by use of a cram-

ming process rather than to allow the student to acquire a thorough understanding of the subject matter."

Earlier contact with patients for the student would be a desirable advance in medical education, Dr. Mayo believes.

A UNIQUE EUROPEAN CLINIC TOUR

A four-page insert in the advertising section of the *JOURNAL* this month announces a European Clinic Tour built along quite original lines and sponsored by the State Medical Journals. It differs from the traditional clinic tour in two very conspicuous ways: the individual clinic service by which a man is enabled to see in each city the things that most immediately concern him, and the new range of choice in the matter of transportation. We have joined with the other State Journals in the organization of this party because we believe that the features just mentioned will appeal very strongly to doctors of independent habit of mind and also because it enables us to offer to the members a tour at practically wholesale prices.

The foreign arrangements for the tour are being supervised by B. W. Van Riper, Ph.D., Vice-President of the Travel Guild of America. He has had wide experience in this field including the memorable tour under the leadership of Dr. Chas. Mayo in 1925, the most successful of all clinic tours down to date. Of especial interest in connection with this tour is the offer of transportation by de luxe private automobile at prices little higher than by rail. This will appeal very strongly to all who appreciate the enormously enhanced convenience and sightseeing value of motor travel.

Those who already have it more or less in mind to take a vacation abroad this summer will find the Cooperative Tour very much worth investigating. The Travel Guild has prepared a beautiful booklet describing the tour which will be sent to anyone upon request. Information may also be obtained from any office of the Canadian Pacific Steamship Services, since the party is scheduled to sail on the excellent cabin ships of this company, or of the Travel Guild, 180 N. Wabash Ave., Chicago, Ill., under whose management the tour is operated.

ILLINOIS STATE MEDICAL SOCIETY EIGHTY-FIRST ANNUAL MEETING

EAST ST LOUIS, ILLINOIS

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WOMEN'S AUXILIARY

PROGRAM FOR STATE MEETING

Tuesday, May 5, 1931

10:00 a. m.—State Board meeting.
 11:30 a. m.—Meeting of county presidents with President-Elect Mrs. Freeman.
 1:30 to 4:00 p. m.—Trip to Forest Park, St. Louis, visiting Lindberg museum and the zoo.
 4:00 to 6:00 p. m.—Tea.
 7:00 p. m.—Dinner for board members and county presidents.
 8:00 p. m.—Opening meeting Illinois State Medical Society followed by illustrated lecture on "Travels in Africa."

Wednesday, May 6, 1931

9:00 a. m.—Opening meeting of the Auxiliary.
 1:00 p. m.—Annual luncheon at St. Clair Country Club.
 Installation of the new president.
 Bridge and golf.
 6:00 p. m.—Joint dinner with the men "President's Dinner," Knights of Columbus Hall.

Thursday, May 7, 1931

10:00 a. m.—Meeting of the new Board with Mrs. Freeman.

LADIES' ENTERTAINMENT

The details relative to entertainment of ladies attending the meeting with the exception of the auxiliary program, have not yet been announced, but will be given in detail in the official program to be published in the April JOURNAL.

SECRETARIES' CONFERENCE

Shrine Temple

I. L. Foulon, President.
 W. D. Murfin, Vice-President.
 Harold Swanberg, Secretary.

PROGRAM

Tuesday Morning, May 5, 1931

10:00—"Public Relations of the County Medical Society," Nathan S. Davis, III, Chicago.

"Some of the Burdens of the County Society Secretary and a Few Rewards," E. J. Goodwin, St. Louis, secretary, Missouri State Medical Association.

"The Challenge of Syphilis," Andy Hall, Springfield.

"The Educational Committee and Its Relation to the County Medical Society," Miss Jean McArthur, Chicago.

"The Economic Trend and Imperative Need for Change in Method and in the Attitude of Present Medical Practice," C. D. Center, Quincy.

The annual secretaries' banquet will be held on Tuesday evening, May 5, 1931. Complete details will be announced in the official program.

MEETING OF THE HOUSE OF DELEGATES

Tuesday Afternoon, May 5, 1931

3:00—Meeting called to order by the President, William D. Chapman, for reports of officers, the council committees, and to transact other business to come before the House.

Thursday Morning, May 7, 1931

8:30—Meeting called to order by the President for election of officers, councilors, committees, delegates to the American Medical Association, report of resolutions committee and for the transaction of other business that may come before the House.

At the close of this meeting, the President-Elect, R. R. Ferguson, will be inducted as President of the Illinois State Medical Society.

GENERAL SESSIONS

Shrine Temple

Tuesday Evening, May 5, 1931

7:30—Meeting officially opened by the President, William D. Chapman.

Invocation.

Address of Welcome—Mayor of East St. Louis.

Address of Welcome—President, St. Clair County Medical Society.

Address—To be announced.

Wednesday Afternoon, May 6, 1931

1:15—"Aviation Medicine." Louis H. Bauer, Hempstead, L. I. New York. (By Invitation.)

2:00—Oration in Surgery. Evarts A. Graham, Professor of Surgery, Washington University School of Medicine, St. Louis. "Lowering the mortality in operations on the Biliary Tract."

Wednesday Evening, May 6, 1931

7:30—President's address. William D. Chapman, President, Illinois State Medical Society. Silvis.

8:00—Oration in Medicine. To be announced.

These addresses follow the President's Dinner at the Knights of Columbus Building.

PRESIDENT'S DINNER

The Annual President's Dinner will be held at the Knights of Columbus Building on Wednesday evening, May 6, 1931, at 6:30. This is an interesting function honoring our President, William D. Chapman, and the Past Presidents of the Illinois State Medical Society who will be guests at the dinner. It is hoped that every member and guest at the meeting will attend this dinner.

Dr. F. O. Fredrickson, the immediate past President, will preside as Toastmaster. A suitable dinner program will be arranged by the committee.

Tickets for the dinner can be procured at the Registration Desk from any member of the President's Dinner Committee. The President's address and Oration in Medicine will follow the dinner, the meeting in charge of the First Vice-President, B. G. Wilcox.

THE STAG

After the opening meeting on Tuesday evening, May 5, 1931, the St. Clair County Medical Society will be host to the visiting members and guests. The nature of the program and entertainment will be announced later.

SECTION PROGRAMS

SECTION ON MEDICINE

Shrine Temple

Lowell D. Snorf, *Chairman*.

Warren Pearce, *Secretary*.

Tuesday Afternoon, May 5, 1931

This Section will join with other sections for a joint meeting, which will consist of talks and clinics given by invited guests. Program not yet completed.

Wednesday Morning, May 6, 1931

9:00—Results in the Treatment of Allergic Diseases, Samuel J. Taub, Chicago.

9:30—Chairman's Address. (Subject to be announced.) Lowell D. Snorf, Chicago.

10:00—General Practitioner's Attitude to the Recovered Mental or Nervous Case, S. N. Clark, Jacksonville.

10:30—(Subject to be announced), J. P. Simonds, Chicago.

11:00—Anemia, Richard F. Herndon, Springfield. Discussion opened by S. R. Hoover, Quincy.

11:30—Tuberculosis of the Skin, Cleveland J. White, Chicago.

Wednesday Afternoon, May 6, 1931

2:00—Luetic Aortitis, L. Feldman, Chicago.

2:30—Coronary Thrombosis, Walter S. Priest, Chicago.

3:00—Trauma as a Cause of Heart Disease, Fred M. F. Meixner, Peoria.

3:30—Chronic Vascular Occlusion of the Extremities, G. De Takats, Chicago.

4:00—Diabetes, Walter Nadler, Chicago.

Thursday Morning, May 7, 1931

9:00—Pediatrics Talk. (Subject to be announced.) Gerald M. Cline, Bloomington. Discussion opened by H. S. Maupin, Quincy.

9:30—A Review of Some of the Advances in Gastro-Intestinal Diseases, Joseph G. Beykirch, East St. Louis.

10:00—Clinical Significance of Roentgenological Findings of the Stomach and Duodenum, Sidney Portis, Chicago.

10:30—(Subject to be announced.) John Carey, Joliet.

This program will be re-arranged and completed for the official program publication in the April JOURNAL.

Dr. A. C. Ivy, Professor of Physiology, Northwestern University Medical School, Chicago, will appear before the Joint session.

"Observations on the Emptying of the Gall Bladder;" Illustrated by Motion Pictures.

SECTION ON SURGERY

J. H. Bacon, *Chairman*.Jas. T. Gregory, *Secretary*.*Tuesday, May 5, 1931*

Shrine Temple

1:00—6:00.

General meeting of Sections, at which guest speakers will present an interesting program.

1. Ernest Sachs, Washington University, School of Medicine, St. Louis, Dry Clinic—Spinal Cord Lesions.

2. Wm. D. Gatch, University of Indiana, School of Medicine, Indianapolis, Different Phases of Intestinal Obstruction.

3. Multiple Infections Within the Abdomen.

a. Histories, Ellsworth Black, Jacksonville.

b. Deductions, Carl E. Black, Jacksonville.

Other speakers for this interesting session will be announced in the official program.

Wednesday, May 6, 1931

Shrine Temple

9:00—Acute Pancreatitis, P. E. Hopkins, Chicago.

9:30—The Treatment of Injuries to the Kidneys, Harry C. Rolnick, Chicago.

10:00—The Role of Prophylaxis in Obstetrics, Frank F. Maple, Chicago.

10:30—Multiple Myeloma, Chas. D. Center, Quincy.

11:00—The Maggot Treatment of Osteomyelitis, Jacob Myers and Leo Czaja, Chicago.

3:00—The Diagnosis of Hyperthyroidism, E. P. Sloan and Frank Deneen, Bloomington.

4:00—Fractures About the Elbow Joint, Philip H. Kreuscher, Chicago.

4:30—Post-Operative Management of Abdominal Operations, C. David Brown, Chicago.

5:00—Surgical Treatment of Carcinoma of the Colon, George de Tarnowsky, Chicago.

5:30—Subject and speaker to be announced.

Thursday Morning, May 7, 1931

Shrine Temple

9:00—Fractures of the Upper End of the Femur, Frank G. Murphy, Chicago.

9:30—Surgical Treatment of Chronic Arthritis, M. A. Bernstein, Chicago.

10:00—Subject and speaker to be announced.

10:30—Mal-Practice, J. R. Ballinger, Chairman, Medico-Legal Committee, Chicago.

11:00—The Preparation of the Patient for

Prostatectomy, Frank M. Phifer, and William H. Holmes, Chicago.

SECTION ON EYE, EAR, NOSE AND THROAT

Shrine Temple

Harry S. Gradle, *Chairman*.Wright C. Williams, *Secretary*.*Tuesday Afternoon, May 5, 1931*

1:00—Surgery of the Structures Related to the Inner Canthus of the Eye. Lantern illustrations. Vilray P. Blair, St. Louis. (By invitation.)

2:00—Fibro-Sarcoma of Orbit and the Kronlein Operation. Report of a case. Lantern demonstration. O. D. Cunningham, Rockford.

Discussion opened by George F. Suker, Chicago.

2:20—Embryonic Development of the Nasal Accessory Sinuses, W. L. Hanson, East St. Louis.

2:40—Congenital Dacrocystitis, Harry Woodruff, Joliet.

Discussion opened by Ralph Fox, Bloomington.

3:00—Dust Sensitization in Relation to Hay Fever, L. B. Bernheimer, Chicago.

Discussion opened by Myron E. Kahn, Chicago.

3:20—Recurrent Hemorrhages Into the Vitreous. (Eale's Disease?) Report of a case. W. R. Fringer, Rockford.

Discussion opened by H. W. Woodruff, Joliet.

3:40—Transient Hyperopia and Reduced Accommodation in Diabetes Mellitus, C. W. Geiger, Kankakee.

Discussion opened by E. C. Spitze, East St. Louis.

4:00—The Effects of Diathermia Upon Deafness, M. R. Guttman and Max Kulvin, Chicago.

Discussion opened by C. D. Sneller, Peoria.

4:20—Sinus Surgery. Subject to be announced, Howard Ballenger, Chicago.

4:40—Phlyctenular Conjunctivitis, Beulah Cushman, Chicago.

5:00—Edema of the Larynx. Lantern demonstration. C. D. Sneller, Peoria.

6:30—Annual Banquet of the Section with Illustrated Lecture by Richard L. Sutton, Kansas City, on "Big Game Hunting."

Wednesday Morning, May 6, 1931

9:00—Refinements in Surgery of the Tonsils Including Electro-Surgery. Illustrated by motion pictures. F. B. Balmer, Chicago.

9:20—Electro - Surgical Extirpation of the Tonsils in the Tuberculous. Preliminary report. A. R. Hollender, Chicago.

Discussion opened by Francis L. Lederer, Chicago.

9:40—Subject and speaker to be announced.

10:00—Choked Disc and Optic Neuritis. A photographic demonstration. Arthur J. Bedell, Albany, N. Y. (By invitation.)

11:00—Experiences with Chronic Deafness, W. V. Mullin, Cleveland. (By invitation.)

Wednesday Afternoon, May 6, 1931

1:15—Aviation Medicine, with Special Reference to the Special Examinations, Col. Louis H. Bauer, former medical director, Bureau of Aeronautics Department of Commerce, Hempstead, Long Island, N. Y. (By invitation.)

This address will be given at a General Session, immediately preceding the Oration in Surgery.

2:00—Oration in Surgery. (General Session.)

Immediately following the Oration in Surgery, the members of this section will be provided with transportation to the new McMillan Hospital, the Eye, Ear, Nose and Throat Department of the Washington University School of Medicine, St. Louis, where the section will be guests of Dr. Howard and Dr. Dean.

SECTION ON PUBLIC HEALTH AND HYGIENE

Chas H. Miller, *Chairman*.

Arlington Ailes, *Secretary*.

Tuesday Afternoon, May 5, 1931

1:00—Heart Disease—Prevention and After-care, I. C. Riffin, Executive Secy., American Heart Association, New York City. (By invitation.)

These talks will be given at a Joint Session, with other Sections.

Wednesday Morning, May 6, 1931

8:30—Some Experimental Work in Anterior Poliomyelitis, H. J. Shaughnessey, Springfield.

8:50—Treatment of Anterior Poliomyelitis with Immune Serum, H. A. Orvis, Winnetka.

Discussion opened by Lloyd Arnold, Chicago.

MENTAL HYGIENE SYMPOSIUM

9:30—Feeble-Mindedness in Illinois. Illustrated by motion pictures. Groves B. Smith, Beverly Farm.

10:00—Mental Hygiene in the Home, Frank P. Norbury, Jacksonville.

10:20—Facilities for Treatment of Mental Disease and Cost, Charles F. Read, Elgin.

11:00—Diagnosis—Clinical Demonstration of Clauses of Mental Diseases, Ralph C. Hamill, Chicago.

Wednesday Afternoon, May 6, 1931

3:00—Modern Psychiatry and Criminology, Meyer Solomon, Chicago.

3:20—Shall Mental Disease Come Under Public Health Regulation, Arnold H. Kegel, Commissioner of Health, Chicago.

3:40—Heat Therapy in Paresis, Sidney Wilgus, Rockford.

4:00—Discussion—Symposium.

1. Diagnosis, F. J. Gerty, Chicago.

2. Prevention, W. A. Evans, Chicago.

3. Care, H. Douglas Singer, Chicago.

4. Crime, Judge John P. McGoorty, Chief Justice, Criminal Court of Cook County, Chicago. Judge Sonstebly, Municipal Court, Chicago. Arnold H. Kegel, Commissioner of Health, Chicago.

Thursday Morning, May 7, 1931

8:30—Public Health Aspects of the Cancer Problem, Roswell T. Pettit, Ottawa.

Discussion opened by Gilbert Fitzpatrick, Chicago.

9:00—Aspects of Medical Quackery, Henry R. Krasnow, Chicago.

Discussion opened by Arthur J. Cramp, American Medical Association, Chicago.

9:30—Factors in Tuberculosis Which Make It a Public Health Problem, D. D. Monroe, Edwardsville.

Discussion opened by R. W. Dunham, Ottawa.

10:00—Value in Bedside Nursing in a Public Health Program, Margaret McGreevy, R. N., LaSalle.

Discussion opened by Mrs. Irene McCullough, Director of Nurses, Metropolitan Life Insurance Company, Chicago.

10:30—Trends in Public Health Work, Allen J. McLaughlin, Chicago.

Discussion opened by I. D. Rawlings, Chicago.

SECTION OF RADIOLOGY

Shrine Temple

Henry W. Grote, *Chairman*.

E. L. Jenkinson, *Secretary*.

Wednesday, May 6, 1931

9:00—Meeting called to order by Chairman of Section.

9:10—Early Recognition of Gas Bacillus Infection by X-ray—Report of Several Cases and Recovery, Harry Olin, Chicago.

Discussion opened by G. E. Morgan, Monticello.

9:30—X-Ray and Radium in Malignancy, L. R. Sante, St. Louis, Missouri. (By invitation.)

Discussion opened by E. L. Jenkinson, Chicago.

9:50—The Present Status of the Treatment of Carcinoma of the Uterine Cervix—a Resume of Methods Used and Results Achieved in Leading European Clinics, R. T. Pettit, Ottawa.

Discussion opened by Henry Schmitz, Chicago.

10:10—X-ray Aspect of Gastric Carcinoma, James T. Case, Chicago.

Discussion opened by C. U. Collins, Peoria.

10:30—Gall Bladder—Cholecystography Versus the Primary Film Method, Robert A. Arens, Chicago.

Discussion opened by Perry Goodwin, Peoria.

10:50—Interpretation of X-ray Reports for General Medical and Surgical Practitioners, E. H. Skinner, Kansas City, Missouri. (By invitation.)

Discussion opened by Max Hubeny, Chicago.

11:10—Subject to be announced. Edwin C. Ernst, St. Louis, Missouri. (By invitation.)

Discussion opened by W. G. Bain, Springfield.

11:30—Evaluation of Radiology in Pediatrics, Gerald M. Cline, Bloomington, and John R. Vonachen, Peoria.

Discussion opened by Harold Swanberg, Quincy.

11:50—Election of Officers for the Section for coming year.

Thursday, May 7, 1931

9:10—Roentgenotherapy of Conditions Other Than Malignancy, I. S. Trostler, Chicago.

Discussion opened by E. G. C. Williams, Danville.

9:30—The Value of X-ray Therapy in Malignant Diseases, Cassie Rose, Chicago.

Discussion opened by I. S. Trostler, Chicago.

9:50—Treatment of Breast Carcinoma, B. H. Orndoff, Chicago.

Discussion opened by J. K. P. Hawks, Bloomington.

10:10—Definite Case Report on Rubin Method—Exhibition of End Result, F. Flinn, Decatur.

Discussion opened by B. H. Orndoff, Chicago.

10:30—X-Ray Therapy in Skin Diseases, Arthur W. Erskine, Cedar Rapids, Iowa. (By invitation.)

10:50—Phrenic Exeresis in the Treatment of Pulmonary Tuberculosis, George M. Landau, Chicago.

Discussion opened by Jerome Head and Otto Schlack, Chicago.

11:10—X-ray Diagnosis of Thoracic Pathology, Herman Cole, Springfield.

The Roentgen Diagnosis of Bronchiectasis, Adolph Hartung, Chicago.

Discussion of these papers opened by L. R. Sante, St. Louis. (By invitation.)

11:50—Installation of Officers for coming year.

RULES GOVERNING THE PRESENTATION OF PAPERS

All papers read by members shall be limited to twenty minutes and remarks in discussion to five minutes, floor privilege being allowed only once for the discussion of any one subject.

All papers read before the Society or any of its Sections shall become the property of the Society. Each paper shall be deposited with the Secretary of the Section when read and the presentation of a paper to the Illinois State Medical Society shall be considered tantamount to the assurance on the part of the writer that such paper has not already appeared and will not appear in medical print before it has been published in the ILLINOIS MEDICAL JOURNAL.

A paper not heard in its scheduled turn shall be held subject to the call of the Chairman of the Section at the end of the regular session if time permits, or as an alternative at the end of the program.

All subjects shall be confined strictly to the subject in hand.

No paper shall appear in the printed transactions of the meeting unless read in full or in abstract.

(From the By-Laws of the Illinois State Medical Society.)

EXHIBITORS AT 1931 ANNUAL MEETING

American Medical Association, 535 North Dearborn Street, Chicago.

A. S. Aloe Company, 1819 Olive Street, St. Louis.
Chicago Health Department, Chicago.
DePuy Manufacturing Company, Warsaw, Indiana.
Dick X-Ray Company, St. Louis.
General Electric Corporation, Jackson Blvd. & Robey St., Chicago.

Gerber Products Division, Freemont Packing Company, Freemont, Michigan.

Horlicks Malted Milk Corporation, Racine, Wisconsin.

Huston Brothers Company, 185 North Wabash Avenue, Chicago.

Illinois Department of Public Health, Springfield.

Illinois Tuberculosis Association, Springfield.

Kellogg Company, Battle Creek, Michigan.

Loyola University School of Medicine, Chicago.

W. W. McMaster, Peoria.

Mead Johnson & Company, Evansville, Indiana.

Medical Protective Company, 360 North Michigan Blvd., Chicago.

Mellin's Food Company, 177 State Street, Boston, Mass.

V. Mueller & Company, Ogden Avenue & VanBuren Street, Chicago.

Petrolagar Laboratories, 536 Lake Shore Drive, Chicago.

Chas. H. Phillips Chemical Company, 170 Varick Street, New York City.

Post Graduate School of Surgical Technique, Chicago.

W. B. Saunders Company, West Washington Square, Philadelphia.

Section on Radiology, Illinois State Medical Society.

S. M. A. Corporation, Cleveland, Ohio.

Tailby-Nason Company, Boston, Mass.

University of Illinois School of Medicine, Chicago.

U. S. Fidelity & Guaranty Company, St. Louis.

Vilray P. Blair, St. Louis.

Washington University School of Medicine, St. Louis.

(This list incomplete—will all appear in Official Program.)

SCIENTIFIC EXHIBITS

We expect to have the finest scientific exhibits at the meeting, that we have yet had. The list, and definite showing, yet incomplete.

The American Medical Association will exhibit some very interesting material to show what the Association is doing not only for the Medical Profession, but also showing what it is doing to protect the citizens of our Country.

Council on Pharmacy and Chemistry: Posters and specimens illustrating the efforts of this Council in the interests of scientific medicine and rational prescribing.

American Medical Association Chemical Laboratory: Posters and specimens bearing on such subjects as newer synthetics, comparative prices of proprietary and non-proprietary remedies, and drug control.

Bureau of Investigation: A series of educational posters on the nostrum evil and quackery prepared by the Bureau for the use of physicians, health officials, schools and colleges.

Council on Medical Education and Hospitals: Posters

and charts on hospitals for nervous and mental diseases.

Bureau of Health and Public Instruction: Charts and posters of the health education series, of infant welfare series and how the doctor prevents disease.

Bureau of Legal Medicine and Legislation: Posters showing the activities of the Bureau, extent of medical defense activities of constituent associations,—states having basic science requirements,—states having annual registration requirements,—states providing for eugenic sterilization of the feeble-minded.

American Medical Association Library: Graphic demonstration by charts and posters of the various services rendered by the library to the individual physician. An exhibit of the *Quarterly Cumulative Index Medicus*, specimens illustrating the reference service, samples of package libraries and periodical lending service.

Council on Physical Therapy: Posters, apparatus and charts demonstrating ultra-violet light.

These are among the many interesting things to be shown in the scientific educational exhibit of the American Medical Association.

The Illinois State Department of Public Health will show many interesting things which the State Health Department is doing to protect the health of the citizens of Illinois. Several of these large exhibits have been built jointly by the State Department of Health, and the University of Illinois College of Medicine. The first of these exhibits was shown at the annual meeting in Joliet last year, showing the various manifestations of Pneumonia. This exhibit will be shown again this year, and in addition, similar exhibits will be shown on Typhoid Fever, Tuberculosis, Diphtheria, Pneumonia and Cancer.

In addition to these excellent exhibits, the Department will display and demonstrate the State Department's Laboratory Facilities.

These interesting exhibits have been procured for this meeting through the cooperation of the Section on Public Health and Hygiene of the Illinois State Medical Society.

The University of Illinois School of Medicine will join with the State Department of Health in showing these interesting exhibits mentioned above. Other interesting exhibits will be shown by our University Medical School, and will be in charge of Department heads, from that school.

The Illinois Society for Mental Hygiene will have an interesting exhibit which will be in charge of Helen L. Myrick. This will exhibit many interesting things in connection with the Mental Hygiene activities, and has been arranged in conjunction with the Section on Public Health and Hygiene.

The Chicago Health Department will display an interesting exhibit which will be in charge of the City's Health Commissioner, Dr. Arnold H. Kegel, of Chicago.

Loyola University School of Medicine is planning a highly interesting scientific exhibit, from the departments of that school.

The Illinois Tuberculosis Association has planned an interesting exhibit showing the work which has been done to check the ravages of the Great White Plague. The exhibit will be in charge of the executive Secre-

tary of that Association, Mr. W. P. Shahan, Springfield.

Dr. Vilray P. Blair, of St. Louis, has arranged an interesting exhibit showing the newer methods in plastic surgery. The exhibit consists of interesting charts and illustrations of these procedures, along with wax models to illustrate the interesting points in connection with the work.

Washington University School of Medicine, St. Louis, is planning to have several of their departments represented with interesting scientific exhibits. The details have not yet been announced, but they will be given in the official program.

There will be a considerable number of other interesting scientific exhibits shown, which will add greatly to the value of this type of visual education to the Medical Profession of Illinois.

More complete details will appear in the official program to be published in the April issue of the ILLINOIS MEDICAL JOURNAL.

BEWARE OF IMPOSTER

Beware of a man representing himself as Dr. Sylvan Coombs, establishing his identity through prescription pads stolen from my office, also a statement from Finch and Company for whiskey. He is about five feet ten or eleven inches, weighs about 175 pounds, has gold tooth on right side of upper jaw, very deep dimple in chin, ruddy complexion, blond hair, carries new doctor's grip, wore a blue suit and carries a racoon overcoat. He operates over a wide territory, last report of forged checks coming from Dr. Young of Aurora.

(Signed) DR. SYLVAN COOMBS.

EDUCATIONAL COMMITTEE PRESENTS FIGURES INDICATING SERVICE GIVEN TO PUBLIC AND MEDICAL SOCIETIES

January and February, 1931

67—Lay organizations, with a total attendance of about 6,000, secured speakers for health programs from the Educational Committee.

35—Appointments represented down state organizations.

32—Appointments were in Chicago or Cook County.

75—Radio Talks were given from stations WGN and WJJD.

25—Physicians were scheduled to present scientific programs before county medical societies.

1,375—Health educational articles, announcements of meetings of medical societies, programs

of public health meetings, were released to newspapers of the state.

24—Packages of material on "State Medicine" were supplied to debating teams or individuals in 14 different communities of Illinois, Michigan, Ohio, and Indiana.

JEAN MCARTHUR,
Secretary.

ANNUAL MEETING OF AMERICAN COLLEGE OF PHYSICIANS

The fifteenth Annual Clinical Session of the American College of Physicians will be held at Baltimore, Maryland, March 23-27, 1931, with an additional day at Washington, D. C., March 28, 1931.

The Baltimore general headquarters will be at the Alcazar and the Washington headquarters will be the District of Columbia Medical Society Building.

The complete program can be obtained by writing E. R. Loveland, executive secretary, 133 S. 36th St., Philadelphia.

REPORT AND OUTLINE OF THE ACTIVITIES OF THE WOMAN'S AUXILIARY TO THE ILLINOIS STATE MEDICAL SOCIETY

The first meeting of the Board of the Woman's Auxiliary was held in Chicago on June 20, at which time the following Standing Committees were appointed:

Organization—Mrs. W. D. Chapman, Silvis, Ill.

Press Publicity—Mrs. Louis Ostrom, Rock Island, Ill.

Legislation—Mrs. D. J. Evans, Aurora, Ill.

Printing—Mrs. G. Henry Mundt, 700 South Shore Drive, Chicago, Ill.

Social—Mrs. R. R. Ferguson, Chicago, Ill.; Mrs. C. O. Boynton, Sparta, Ill.

Program—Mrs. Geo. W. Post, River Forest, Ill.

Revisions—Mrs. F. H. Pirnat, 2422 Smalley Court, Chicago, Ill.

Public Relations—Mrs. A. H. Baugher, 5214 Greenwood Ave., Chicago, Ill.

Registration—Mrs. J. R. Harger, 544 N. Kenilworth Ave., Chicago, Ill.; Mrs. S. E. Allen, Arcola, Ill.

Credential—Mrs. Floyd Phillips, Arthur, Ill.

The Board felt that there were three objectives which should constitute, to a large degree, the work of the Auxiliary for 1930 and 1931.

1st. The organization of additional counties should be attempted, inasmuch as there were only twelve counties organized at the present

time. Accordingly, Mrs. Chapman was made Chairman of this Committee and each county now organized was urged to organize an additional county during the present administration.

2d. That the present members of the Auxiliary should, so far as possible, educate themselves regarding health problems and interest themselves in lay education along the same lines.

3d. That they should assist the Illinois Medical Society in the securing of such legislation as was felt advisable by the Legislative Committee of the Chicago Medical Society.

Additional Board meetings have been held in Chicago on September 26 and January 16 respectively.

The Press and Publicity Chairman has been urged to keep in contact with all the organized counties in the State and to furnish to the *JOURNAL* the activities of each Society.

Study envelopes have been mailed to the Presidents and Secretaries of all the organized societies.

An excerpt from an article appearing in the *Delineator Magazine* was mailed to all County Presidents requesting them to take up the subject of the article with their members and urge them to write to the *Delineator* protesting against such articles.

Listed below is a report of the activities of the various counties up to the present time of this year:

Cook County

Sept. 24, 1930. Regular meeting of Woman's Auxiliary, at the Medical & Dental Arts Building.

Oct. 1, 1930. Luncheon and meeting. Meeting addressed by Dr. James H. Hutton, President of the Chicago Medical Society. Subject, "How the Auxiliary can be of Value to the Illinois State Medical Society."

Oct. 27, 1930. Regular meetings of Woman's Auxiliary. Address given by Dr. Arthur Joseph Cramp. Subject, "Patent Medicines and Public Health."

Dec. 3, 1930. Social meeting, luncheon and bridge. This meeting was held with a view to increasing the number of members of the Auxiliary. There were 84 present at this meeting.

Feb. 4, 1931. Regular meeting of the Woman's Auxiliary at the Medical & Dental Arts Building. Meeting addressed by Dr. Wm. D. Chapman, President, Illinois State Medical Society and Dr. John R. Neal, Chairman Legislative Committee, Illinois State Medical Society.

McLean County

November, 1930. Meeting addressed by the County Chairman of the Parent Teacher's Association, Mrs. Phillip Wood. The subject of her talk was, "Regard-

ing the Activities and Problems of the Parent Teacher's Association."

December, 1930. Meeting was addressed by probation officer, Mrs. Frink.

January, 1931. Meeting was addressed by Mr. I. Albee, head of the American Legion.

February, 1931. Meeting was addressed by Mrs. Asher. Subject, "Problems of the Orphans at the Baby Fold."

March, 1931. Meeting will be addressed by Mrs. Strohmeier, head of the Social Service Department.

Will-Grundy County

October, 1930. Meeting addressed by Mrs. R. K. Packard, President of the State Auxiliary; subject, "Objective of the Auxiliary." The meeting was followed by a reception and tea.

January, 1931. Meeting was addressed by Dr. Lennon, of Joliet. Subject, "The Jones-Cooper Bill."

January 30, 1931. Dr. Blatt addressed the Woman's Club on Jones-Cooper Bill. This meeting was sponsored by Woman's Auxiliary.

The Southern Illinois Medical Association invited members of the Woman's Auxiliary to the Illinois State Medical Society to take part in the ladies' program at their meeting in Mascoutah, November 6 and 7.

Mrs. W. D. Chapman, Organization Chairman, gave an address. Mrs. T. O. Freeman, President-Elect and Mrs. C. O. Boynton, Councilor for the Tenth District, each gave talks on the work of the Woman's Auxiliary.

On November 20, Mrs. Boynton and Mrs. Freeman had the pleasure of attending a meeting of the Jackson County Medical Society in Murphysboro and gladly responded to a request from the secretary to explain to them the work of the Auxiliary and the need for one in each county.

On November 21, the wives of members of Franklin County Medical Society joined the doctors at dinner in Benton. After the dinner the ladies held a meeting, when Mrs. T. O. Freeman, at the request of the President of the Medical Society, addressed them on the need of organizing an Auxiliary.

Tri-County Meeting (Knox, Warren and Henry Counties) at Galesburg, October 13, Mrs. W. D. Chapman gave the address.

Sangamon County

March, 1930. Talk on Health Problems by Dr. Grace Wightman.

April, 1930. Talk by Dr. Geo. Palmer.

May, 1930. Auxiliaries—Mrs. Solomon Jones, Pres. Vermillion County.

June, 1930. Report of State Meeting by Mrs. Met-

calf. Speakers: Dr. Andy Hall, Dr. J. R. Neal, Dr. S. E. Munson. Medical Society was invited.

October, 1930. Auxiliary work, by Dr. S. Munson, Medical Society councilor—District 5.

November, 1930. Business meeting.

January, 1931. Talk by Dr. Ivy of Northwestern University.

February, 1931. Talk by Dr. J. R. Neal.

De Kalb County

Not functioning.

Kane County

1st Meeting. Joint meeting with doctors at Springbrook Sanitarium, Aurora, Ill.

2nd Meeting. Held at Hotel Leland, Aurora. Enjoyed moving pictures of a trip abroad by one of the doctors and wife.

3rd Meeting. Held at Elgin State Hospital. Entered by Mrs. Davis.

4th Meeting. Plan to have County and Public School Nurses talk to us.

5th Meeting. Lecture and music.

6th Meeting. Summer meetings, picnics for doctors and wives.

Vermilion County

September, 1930. Report of National Auxiliary at Detroit, Michigan, by Mrs. Dale and Mrs. Solomon Jones.

October, 1930. Guests of Lake View Hospital in a joint dinner with our husbands and auxiliary of the hospital, followed by a talk by Miss Daily, State Supervisor of Nurses from Illinois State Department of Health.

November 17, 1931. Meeting held at the Young Women's Christian Association. Health Destitute program. Speakers: Miss Slimpert, Mrs. Bertha Gibson, Dr. M. R. Combs, Miss Fannie Brooks, Mrs. E. L. Allen, Mrs. T. O. Freeman, Dr. Aaron Arken—Chicago University, Mr. Luther Fuller.

Rock Island County

January, 1931. Addressed by Dr. Hess, University of Illinois.

The program and arrangements for State Meeting at East St. Louis May 5, 6, and 7 will be published in April issue. It is important that every member attend this meeting. Our organization is new and there are many problems confronting us. Our success depends on the activity and cooperation of each member.

MRS. R. K. PACKARD,

President.

THE OFFICE OF THE EDUCATIONAL COMMITTEE, 185 NORTH WABASH AVENUE, CHICAGO, WILL FURNISH MATERIAL ON THE FOLLOWING SUGGESTED STUDY TOPICS TO YOUR WOMAN'S AUXILIARY.

State Medicine

Dangers of.

Reports from other countries.

Legislation leading to.

Medical Ethics

The physician.

The physician's wife.

Periodic Health Examination

Every member of the Auxiliary has physical examination. Importance in early discovery of cancer, heart disease, etc.

Smallpox and Vaccination

Ranking of Illinois.

Dr. Andy Hall's plan.

Pre-School Child Examination

Work of the Parent Teacher Association.

Examinations given by family physician.

Follow up for correction of remediable defects.

Cost of Medical Care

Physician.

Hospital.

Nurse.

Laboratory.

Pharmacy.

Medical Legislation

Cooper-Robson Bill (Jones Cooper, Sheppard Towner).

Vivisection.

New bills which may be introduced (National, State).

Diphtheria

What is record in Illinois.

County record.

How many children immunized.

Death rate.

Public Health

State, County and City Departments, organization of.

Relation of the County Medical Society and its members.

Medical Organization

American Medical Association.

State.

County.

BILLS OF INTEREST TO THE MEDICAL PROFESSION BEFORE THE STATE LEGISLATURE

The following bills are of more or less interest to the medical profession:

Senate Bill 68, introduced by Senator Bohrer, provides that registered nurses must have an additional examination in order to be certified as public health nurses. This bill failed to get the endorsement of the Legislative Committee of the Chicago Medical Society, and has not as yet been presented to the Council of the Illinois State Medical Society.

Senate Bill 92, introduced by Senator Thompson, an old age pension bill, provides \$360.00 per year after age seventy to dependent persons.

Senate Bill 121, introduced by Senator Barr, an eight hour employment bill for women. This bill exempts nurses, but does not exempt hospital employees.

Senate Bill 142, introduced by Senator Finn, a physician senator, provides penalties to be inflicted for the sale of products containing wood alcohol, or methol alcohol, in any food or drink prescribing certain penalties.

House Bill 21, introduced by Representative McClugage, provides a tax from one to one and one-half mills for municipal tuberculosis sanatorium.

House Bill 67, introduced by Representative Thon, is an amendment to the present Ophthalmia Neonatorum Act, making it a penalty for not using a prophylactic in the eyes of the new-born, instead of a penalty for failure to report such cases. This is a very laudable measure, and was recommended by the Judiciary Committee of the House to pass by a vote of forty-

seven (47) to nothing. The only objectors to the Bill are the Christian Scientists, who are mistaking the measure with State Medicine in that the Department of Public Health furnishes the silver nitrate ampoules gratis. It is assumed that an amendment to the measure, exempting on religious grounds, will placate the religious fanatics. There is a danger of over-lobbying in support of this measure.

House Bill 147, introduced by Representative Davidson, proposes to permit an ill or physically disabled person to vote.

House Bill 182, introduced by Representative Davis, a six day per week working bill. Nurses and hospital attendants are not included, although not specifically exempted.

House Bill 192, introduced by Representative Kuechler, a physician member, amends an Act in regard to administration of estates, changes expenses of last illness, including physician's bill, from third to first class claim.

House Bill 302, introduced by Representative Soderstrom, another old age pension fund bill.

House Bill 310, introduced by Representative Thompson, amends the Registration of Births and Deaths Act by providing that in case of death without medical attention that, instead of the registrar, the coroner shall be called, and he shall proceed as set forth in the Coroner's Act.

House Bill 311, introduced by Representative Thompson, another amendment to the Coroner's Act, in which in all cases where death occurs without medical attendance the coroner shall be called, and it is his duty to issue a certificate, and if death is not from natural causes, to hold an inquest.

Quite a number of minor measures have been introduced regarding relief for the blind, sanitary regulations, etc. The Legislative Committee is prepared to furnish a copy of any bill upon request.

J. R. NEAL, M. D.,
Chairman, Legislative Committee.

CONVALESCENT HUMAN SERUM CENTER AT MICHAEL REESE HOSPITAL

The establishment of a serum center at Michael Reese Hospital, Chicago, to supply special human sera to the Chicago district for the treatment of various infectious or contagious diseases, especially for the treatment of infantile paralysis, has been announced by the hospital.

This is the first serum center to be established in the state of Illinois, although the importance of these laboratories have proved their value in such cities as Boston, San Francisco, and Detroit.

The creation of the serum center comes at a time in which there has been a marked increase in the number of cases of infantile paralysis in Illinois. The number in 1930 was almost five times that for 1929, the comparative figures being 410 in 1930 against eighty-eight in 1929.

The sera that will be supplied are different from horse sera previously used, such as diphtheria antitoxin,

tetanus antitoxin, etc. These commercial sera can be produced in any quantity needed but those now being prepared in the serum center are being obtained only from patients who have recovered from various diseases, and whose serum has been shown to prevent disease in patients who have been exposed to similar infection. In some instances, these human sera have definite and marked curative value, as in the case of infantile paralysis and scarlet fever.

It has been found that serum from people who have passed through an attack of infantile paralysis, when given to patients with the acute disease, before paralysis has appeared, will prevent paralysis in a very high percentage of cases, and will prevent death in an even higher percentage.

The Visiting Nurses' Association, of Chicago, is co-operating in this work and already has secured the promise of many individuals who have recovered from infantile paralysis to donate some of their blood. It is hoped that many people will volunteer to donate blood because the Center wants to furnish serum for all who need it, regardless of whether they can pay for it or not.

The Illinois State Board of Health will distribute convalescent serum, and close co-operation between it and the Michael Reese Hospital Serum Center has been arranged for.

DEVELOPMENT IN THE PROBLEM OF ARTHRITIS

In his review of this subject, Ralph Pemberton, Philadelphia (Journal A. M. A., Jan. 3, 1931), stresses the fact that attacking this problem with any drug or any vaccine alone is too often like firing at the head above the ramparts instead of at the fortification itself. In the opinion of most of the American committee for the control of this disease it is of the first importance to envisage the disease as a whole instead of focusing on any factor, be it mechanical, bacteriologic or nutritional, which may merely precipitate it. In arthritis a variety of factors contributes to bring about the disease. No agency or organism is recognized by the American Committee for the Control of Rheumatism as the single cause of it, and no drug, vaccine or any single form of therapy can alter the hereditary or constitutional make-up, the faulty anatomy or physiology of the intestinal tract or the deranged metabolism secondary to the disease, perhaps sometimes underlying it. There is probably no other consideration before the medical profession more important in terms of persons now living than that of seeing this problem whole. Even irregular practitioners are now beginning to treat these sufferers with a breadth of view which some of the leaders of medicine do not entertain. The medical profession as a whole is not much more immune from prejudice of single-minded enthusiasm than are those who constitute it. Is it to allow to be repeated here the experience in the field of physical therapy in which the layman and the quack, almost alone, kept alive therapeutic principles rediscovered fifty years later by orthodox medicine? The problem of arthritis is unrolling and developing before the eyes of the medical profession. Should not

physicians highly resolve to catch up with and keep abreast of this evolution and extend its fine possibilities to the hosts of arthritic patients in this country? It is of importance to learn more concerning this protean disease, but it is even more important for the generations now living that the profession learn more of what is already known about it. Orthopedic surgeons have gone afield in the past to atone for much neglect and mismanagement on the part of others. Their help may be equally necessary in the better mapped and brighter future.

THE THREE HORMONE TESTS FOR EARLY PREGNANCY

A clinical evaluation of various tests as represented by Charles Mazer and Jacob Hoffman, Philadelphia (Journal A. M. A., Jan. 3, 1931), is as follows: The ovarian hormones; the sex-maturation hormone of the anterior pituitary gland; Aschheim-Zondek test; the female sex hormone test, and the Siddall test. The authors conclude that the hormone tests for pregnancy are of distinct clinical value in the differential diagnosis between early pregnancy, normal or ectopic, and pathologic conditions associated with amenorrhea or irregular uterine bleeding. The female sex hormone test is the more reliable when positive in that the proportion of error in nonpregnant women is less than 4 per cent. A rigid interpretation of the vaginal spreads and the elimination of abrupt and delayed reactions reduce this element of error considerably. The inability of the genital tract to utilize the small quantity of female sex hormone present in the circulating blood in women with ovarian deficiency results in its elimination by the kidneys; hence the occasional false positive reaction by the female sex hormone test in these cases. The compensatory pituitary hyperfunction accompanying ovarian deficiency is responsible for the comparatively large number of false positive reactions in the Aschheim-Zondek and Siddall tests. The tests performed individually render a positive reaction in about 75 per cent of early pregnancies; when combined, the percentage of positive reactions is increased to 90, by virtue of one of the three tests showing a positive reaction. A negative finding does not exclude the possibility of pregnancy; repeated negative reactions are fairly reliable.

ADENOCARCINOMA OF THE HEAD OF THE PANCREAS

Elmer Hess, Erie, Pa. (Journal A. M. A., Jan. 3, 1931), reports the case of a woman who notice a tumor mass in the right side of the abdomen, which was freely moveable. A competent man, head of a prominent diagnostic clinic, reported after a complete gastrointestinal study that the tumor, which apparently was fixed to the lower pole of a freely movable right kidney, was probably a hypernephroma. Several cystoscopic studies were made with the final preoperative diagnosis, calcified cyst of the lower pole of the right ectopic kidney. At operation the kidney was found to be perfectly normal, although freely moveable. The tumor mass, which was below the pelvic brim, was easily de-

livered into the loin incision and easily removed. Death occurred forty-eight hours later. Observations at autopsy revealed that an adenocarcinoma, involving the head of the pancreas, had been removed.

PRINCIPLES OF PROGNOSIS IN CANCER

William Carpenter MacCarty, Rochester, Minn. (Journal A. M. A., Jan. 3, 1931) states that there are at least fifteen factors governing prognosis in cancer: (1) The presence or absence of glandular involvement and distant metastasis. (2) Fixation of growth. (3) Location. (4 and 5) Renal and cardiac efficiency. (6) Anemia. (7) Size of growth. (8) Age. (9) Direction of growth. (10) Loss of weight. (11, 12, 13 and 14) Cellular differentiation, lymphocytic infiltration, fibrosis and hyalinization. (15) Duration of disease. Signs and symptoms in cancer have to do with size, anatomic location, mechanical obstruction and hemorrhage. Even pain is usually insignificant unless associated with mechanical obstruction. None of these are diagnostic of cancer or even prognostic if therapy can be instituted. Many benign conditions present such signs and symptoms and may have been present long before cancer has arisen. Any system of microscopic grading of cancer should not alone be of accurate clinical value without taking many other factors into consideration. Furthermore, any system which merely states that a certain percentage of patients with certain grades live a certain length of time does not necessarily furnish data for any specific case. In other words, there is no criterion by which one can state that a given case belongs in the favorable or unfavorable percentage. Moreover, the wise and successful practitioner of the art of medicine will certainly take all possible factors into consideration in making a clinical prognosis. These practical clinical generalizations should not inhibit or prohibit pure scientific studies of possible factors which may or may not be indexes of behavior rather than prognosis in cancer. Perhaps these indexes might be of clinical value in the future, but at present all grading of cancers should be considered in the investigative or experimental stage.

CLINICAL DETERMINATION OF THE ALBUMIN GLOBULIN RATIO IN SPINAL FLUID

A method is described by William G. Exton and Anton R. Rose, New York (Journal A. M. A., Jan. 3, 1931), which separates the two main protein fractions and is a modification of similar methods developed for blood and urine. In principle, the method separates globulin from albumin in the classic way by half saturation with ammonium sulphate and then determines the concentration of each fraction by scopometry after precipitating the albumin and globulin separately with phenol. Because the sum of the amounts of albumin and globulin obtained in this way correspond with the total protein results obtained with the protein reagent and scopometry, which gives excellent correspondence with Kjeldahl checks, it is easier to obtain the concentration of the albumin fraction by subtracting the globulin from the total protein than by precipitating the albumin separately.

Original Articles

DIPHTHERIA AND SCARLET FEVER*

ARLINGTON AILES, M. D.

LA SALLE, ILL.

My only excuse for writing this paper and reading it before this section is that I was invited to do so and did not refuse. I have no proven scientific facts to add to what is already known, but if the paper will excite any thought or cause some discussion of the subject we all may benefit.

Last year I read a paper before this section on "Control of Diphtheria," which was published in the *ILLINOIS MEDICAL JOURNAL* for November, 1929, page 337. This paper is a reiteration and amplification of some of the ideas expressed at that time. At that time I stated that the district, over which I have health supervision and comprising 30,000 population, had not had a case of diphtheria for $2\frac{1}{2}$ years nor a death for $3\frac{1}{2}$ years. Now I can add another full year to each of these figures. In this community comprising La Salle, Peru and Oglesby there has not been a known case of diphtheria for more than $3\frac{1}{2}$ years nor a death from this disease for nearly five years. At that time the discussant, quite naturally, raised the question of the probability of missed cases. This probability will be fully covered in this short paper.

Now firstly, I wonder if this is an unusual record; or perchance, can many cities of 30,000 population claim the same distinction; and secondly, if they can to what do they attribute the fact. We read of quite a few cities that have low case and death rates, but these attribute the fact to the extensive use of toxin-antitoxin. However, in the community spoken of above practically no toxin-antitoxin has been given, either by the health department or the physicians. If this is then an unusual record, to what is it due? Disregarding immunization, is diphtheria susceptible to influences that do not affect scarlet fever.

Here I wish to exhibit a graph showing the cases and deaths for both diseases for La Salle, Peru and Oglesby, and covering the period from 1915 to 1929 inclusive. You will note that in 1915 diphtheria was much the more prominent

disease with 252 cases and 25 deaths, while scarlet fever showed 88 cases and 22 deaths. Then there was a general decline in the case rate of both diseases until early in 1927 when diphtheria disappeared from the picture and scarlet fever reasserted itself more strongly than ever. In the fall of 1927 an epidemic of mild scarlet fever carried over through 1928 and was not entirely eliminated until the summer of 1929. During this time 826 cases occurred with only two immediate deaths attributed to this cause. This is a case fatality rate for the latter period, as shown by the graph, of 0.47% against 25% for the earlier period. The graph shows the death trend also generally downward. That for diphtheria should disappear early in 1925, while the scarlet fever deaths disappeared as early as 1917 and did not reappear until 1924, when we had one death. Since that time we have had one in 1926, one in 1927 and one in 1929. The lines on the graph are smoothed by three year averages, which accounts for them not following closely the figures for the years indicated.

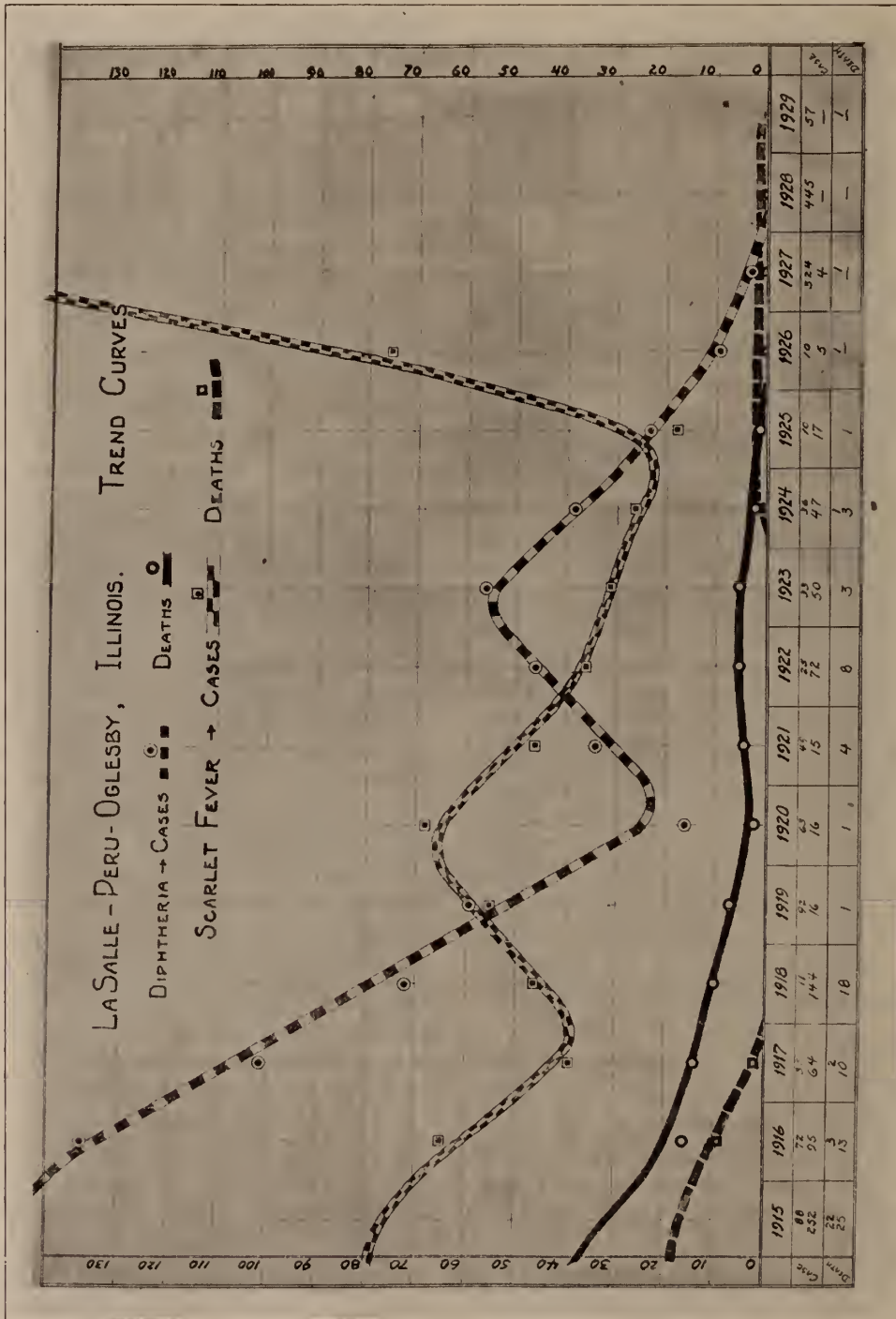
Now we have every reason to believe that diphtheria was reported much better at the beginning of this period than scarlet fever, because, by the use of the culture, we had a very definite means of diagnosis. Even the mildest cases and carriers could be so diagnosed. This was not true of scarlet fever, and then also the belief that scarlatina and scarlet rash was not true scarlet fever was more prevalent than now. This fact combined with the so-called strict quarantine, which increased resistance to reporting, was responsible for probably the majority of scarlet fever cases not being reported. Then scarlet fever, in 1915, may have been and probably was much more prevalent than diphtheria, and the actual case fatality rate much less. Even granting this it seems impossible that the true scarlet fever case fatality rate at that time could have been as low as the present rate of 0.47%. Therefore scarlet fever, as is contended, must have lost much of its virulency in recent years.

Now the discussant of my paper last year implied that we must be missing cases of diphtheria. Answering this, I wish to call attention to the graph again and ask, that if we have the health machinery to find 826 cases of mild scarlet fever in approximately two years, why do we not also find diphtheria cases if there are any. Find-

*Read before Illinois State Medical Meeting, Section on Public Health and Hygiene, May 22, 1930.

ing the doubtful cases of diphtheria should at least be easier than finding scarlet fever, because of the definite advantage of the culture method.

but within the time stated have not made a clinical diagnosis of the disease. During 1915 as many as 1,660 throat cultures were examined



We still have the laboratory and we still examine many throat cultures, but for many months have not found one positive. Occasionally, however, our physicians have given antitoxin for safety,

for diphtheria, of which 336 were positive. The total number examined that year for release and quarantine was 3,270. By 1925 there were only 316 for diagnosis, of which 15 were positive;

and since January, 1926, there have been no positives.

Coincident with this reduction there was a gradual increase in the efficiency of the school and communicable disease nursing, but none whatever in the efficiency of quarantine. During 1925, however, the efficiency of the nursing service was probably quadrupled, by raising the number of nurses from 4 to 7, employing them 12 months of the year instead of ten, and providing each with a car. Besides all this, one of these nurses was a trained supervisor with large experience and capable of getting the most out of this kind of work. Then in 1926 a liberal modified quarantine was adopted, which takes away most of the resistance to quarantine and greatly aids in getting the case on record. It not only takes away the resistance on the part of the family, but by so doing the doctor is glad to report, not only his severe cases, but his mild and doubtful cases as well. The nurse also is more freely admitted to the home and finds many cases; the parents report many cases themselves, and the health officer finds many secondary cases. As evidence of this fact let me state that, for the school year ending in June, 1928, there were in La Salle and Peru 678 known cases of scarlet fever. Of these the physicians reported 303, or approximately 45%; the nurses found 151, or 22%; the parents reported 28, or 4%; the neighbors 6, or 1%; and 190, or 28%, were secondary cases found by the health officer on his revisits to the home. Thus the doctors reported nearly one-half of these mild cases, which is really complimentary, because for most of the cases a doctor never would have been called. I might add that there were 1,981 exposures in the quarantined homes with 18% of secondary cases developing from them for the period of the above school year. This does not indicate a specially good isolation with the homes. However, the same figures for 1929 shows an improvement with only 6% of secondary cases developing within the homes. For comparison it might be interesting to state that the secondary cases for measles, whooping cough, and chickenpox were 75%, 74% and 64% respectively. Therefore scarlet fever is not nearly so contagious as these latter diseases. For obvious reasons I do not have comparable local figures for diphtheria.

Briefly, the method of finding cases includes

two essentials: firstly, the doctor's reports; and secondly, the health department activities. The nurses visit the schools daily, and through the cooperation of the teachers the absentees are listed, and any suspiciously sick children examined and excluded. These are followed into the homes and any suspicious cases reported to the health officer. The health officer then goes to these homes and places the necessary quarantine, or orders other restrictive measures as may be indicated. Many times no diagnosis can be made and the order takes the form of a mere request to keep the child out of school for a certain number of days, or until a subsequent visit by the nurse or health officer determines the child to be well. We quarantine and release many cases without the doctor ever being called, and on the other hand, many physicians are called to cases as a result of our advice to parents that it be done. Altogether I believe that our physicians receive more calls as a result of our policy, and very little conflict between them and the health department ever occurs.

Now I believe that you will agree with me that if we had diphtheria we would find it, and this brings us back to the original questions. Is it unusual for an urban community of 30,000 to be completely free of diphtheria for 31½ years and have no deaths for 5 years? If it is unusual, can it be attributed in whole or in part to the activities or procedures outlined above, or is it due to chance? May not diphtheria be susceptible to these influences, while scarlet fever can not be so influenced. Would you advise me to institute a vigorous toxin-antitoxin campaign or would you suggest that the experiment be continued? I would appreciate discussion, suggestions and criticisms.

DISCUSSION

Dr. Charles H. Miller, Chicago: It is well known that Dr. Ailes is making a record, and he certainly brings up some points that make one think. In Chicago we are trying to depend upon toxin-antitoxin to eradicate diphtheria. Dr. Ailes apparently is perfectly successful without using it. The discussion will be opened by Dr. Orvis.

Dr. Howard A. Orvis, Winnetka: The paper, I think, is a fine demonstration of the efficiency of health department control. It seems to me when the department became active here from 1915 down through this period to 1926 or 1927, that it was working against numerous foci of infection, carriers, missed cases and unreported cases. The effective work of the nursing group and

all the factors of the health department gradually became effective as time went by until in 1926 or 1927 they managed to isolate the last focus. At that time the last carrier throat, the last unreported case, was isolated and cleaned up. Now, as there have been no foci nor reported cases, I don't believe there have been any missed cases. I don't believe you get missed cases without secondaries showing up. Dr. Ailes has been fortunate in not having any reintroductions. Keeping his area clean from diphtheria is a tribute to the department, as the fuel for the fire is there. If you were in an area where there were introductions from the outside, you would have new foci constantly to clean up.

Another point would be interesting to know. Supposing that he had begun at LaSalle and put in this intensive work there and had not employed the same intensity of work in Peru, would he have gotten a clean slate? Would the one area remain with its foci and the other be clean, despite constant reintroduction of the infection?

I have had a somewhat similar experience for the last three and a half years with only 15,000 population. I have had five cases. Three of these were from known sources outside of our area; two of them were from unknown sources. There were no secondaries from these cases. We have a moderate amount of immunization done by private physicians.

I think that with the activities such as Dr. Ailes follows out, checking every case for its contacts, not releasing a case until the throat is clear and checking all exposed throats so that there are no missed cases, that it is possible for a small community to remain fairly free of diphtheria unless there is constant reinfection from the outside. Now, whether that can be maintained, I believe, is due entirely to the type of population. If you are in an industrial area, where you are bringing in constantly a great number of new people, you will reintroduce your infection from the outside. Yet with intense activities in the health department and intense nursing service, I think we can keep this down to a minimum.

The same isn't true as to scarlet fever. The strep-throats are so common as to hardly be considered pathogenic. I don't know of any community that is entirely free from scarlet fever for a long period of time. It does occur in the case of diphtheria. There is a constant source of strep. infection that we don't get under control.

In our last three years, 74 per cent. of our cases were of unknown origin; 26 per cent. were of known contact and nearly all of those occurred in the home of primary cases. In other words, they were those that are subject to mass infection or repeated infection by the active cases.

Dr. Ailes brought up the idea of the decrease in the virulence of the disease. I think we are all experiencing that. We are having much less of the virulent type than we used to have a few years ago. I have had only one virulent case and one death in three years. The cases that bother us just at the present time are so exceedingly mild as to cause us great difficulty in

diagnosis. A child will be out of school for a few days with a sort throat. We check up on him when he comes back and find him peeling a little. We have difficulty in convincing the mother or the physician that he has scarlet fever. Since March and April we have been having a relatively high incidence of scarlet fever. I put a nurse in the school each morning to check over the throats of the groups they had been in contact with. We got two or three cases that came out of these group of known contacts, whereas we have had several times that many other cases where we didn't know of any contact. In other words, among the known contacts only a relatively few cases develop, yet the disease is kept active from some other source of which we don't know.

I some time ago took some throat cultures among families of cases of scarlet fever and also of those that were attending these patients. I have done this both at the onset and release of the cases. I carried that out for two or three months while we were having a mild flare of scarlet. I found this to be the case: that a large percentage of active cases at the end of the quarantine period, even though all clinical symptoms had subsided, carried hemolytic strep. in their throats. The State law won't allow us to keep these out of school on that particular basis. I have had one child in school that had a positive throat for 60 days after he went back. The cultures were taken twice a week. We found there was no secondary case in that school among those who came in contact with this boy.

The throat cultures of the mother or the attending nurse and brothers and sisters, where contact is intimate, not infrequently show the hemolytic strep. Therefore, we have a lot of throats that are carrying hemolytic strep. when we have scarlet fever. We suppose they are the same type as scarlet fever.

We have then other sources of possible contagion aside from the clinical case.

An editorial in the Journal A. M. A. of May 17, 1930, says in some series 41 per cent. of the Dick negative cases are without a history of scarlet fever; that is, in the Dick test of the group, 41 per cent. of the negatives haven't had any clinical history of scarlet fever. How did they get their immunity? We naturally think they must have come in contact with the organism some time during their career in order to develop that immunity. Are they getting their immunity by minor infections of the throat which don't develop into active cases of recognized scarlet?

We have had quite a number of children that have been immunized by the Dick method who are showing well developed pictures of clinical scarlet. I can't give statistics on that because I haven't sufficient numbers to warrant it, but in the last two years we have had six or eight cases to my knowledge that have been immunized by the Dicks or by pediatricians within five years.

Work on the strep. group has been very intensive. Those of us who are not experts in laboratory technique and all of the details of the work that is being done know they follow certain trends that seem to be

very positive; and yet we haven't a clean-cut test to differentiate the different types of strep. as a good clinical working basis.

It seems to me very evident then that, in the case of scarlet fever as contrasted to that of diphtheria, we are isolating only a portion of the sources of infection. We isolate certain active cases that come out as definite clinical scarlet fever. Yet in that same group there are a good many throats that probably can transmit the disease. These are carriers, maybe only for a short period, which are transmitting our disease and yet are not recognized. As long as that condition exists, and we are not able to isolate or even recognize all of our throats that may be carrying hemolytic strep., we are going to have scarlet fever with us. We can not get a real, definite control of scarlet, anything comparable to what has been done there in diphtheria, until some of those active and definite tests are worked out.

Dr. Charles H. Miller, Chicago: The chair, in common with Dr. Ailes, would be greatly pleased if we could have in this discussion a reflection of your opinion as to the wisdom of continuing Dr. Ailes' method of handling diphtheria as a collective experiment, as a collective investigation. Information would be greatly valued, I am sure, by the health officials on whether it is better to use the toxin-antitoxin. Then I would like to know what your ideas are relative to the wisdom of the modified quarantine, which he strongly sanctions.

Dr. G. W. Haan, Aurora: I didn't hear all of Dr. Ailes' paper, but I came in in time to hear that he had no diphtheria discoverable since 1927. I don't believe that is altogether chance. Of course, we all know those of us who have made any observations at all, that all of these contagious diseases go more or less by waves. A few years ago we didn't have a death in two years in about 55,000 inhabitants and very few cases of diphtheria. But I like this record of no cases for three years. That is quite remarkable, when the statistics show that in the ordinary persons on the street about two per cent., perfectly well, are carriers, that the natural habitat of the germ of diphtheria is in the throat of the human being. The doctor evidently has so tamed those germs down in LaSalle and Peru that they won't leave the habitat and come out, or if they do all their power to infect is gone. I don't think it is all chance. I can't believe, knowing somewhat the biology of that germ, whose natural habitat is the throat of the human being, that he is going to always remain clear. I don't know just what kind of a community that is down there that there is no introduction whatever of those germs, that they don't cough them out in some way. Anyhow, that's the most remarkable thing that I have seen yet. Such a large community where there is, I take it, a proper laboratory to test these things. I didn't hear the whole paper, but heard something about the kind of work they are doing.

But as to certain conclusions that the doctor drew about diphtheria, whether immunization should take place in the pre-school age or about as they enter school, I have this to say: that the majority of diph-

theria cases are buried before they enter school, about 62 per cent. So those he won't immunize any more. The Lord has immunized those and buried them. Therefore I regard that as a mistake. Of course, it doesn't make much difference down in LaSalle whether they immunize or not if they have no diphtheria there. In Aurora our luck deserted us and we have stopped counting the deaths this year. I really don't know how many deaths we had. The first death we had up there was an adult about 50 years of age. It knocked us off of our peg. We thought and thought strongly of immunization; of course, we have always taken the stand up there that immunization is a good thing with the toxin-antitoxin. So good indeed that from April 1, 1929, to October or November 1, 1929, 59 per cent. of the infants that have become six months of age were immunized. There was such a scare driven into us that we began to work with a systematic attempt made in Aurora that when an infant reaches six months of age a letter is sent to the mother of that child from the health department stating that "your daughter Mary now is six months of age and it is up to you to take her down to your family doctor and if possible have that child immunized if the child's health permits, that it is a harmless procedure." And that process has worked somewhat better than I thought it would. The health nurses are given about 25 or 30 a week of these notices and they follow them up and never let up on the people until they have got these babies in and have them immunized.

As I said before, I think the government report shows that 62 per cent. of deaths from diphtheria occur before the child is five years of age. I think I am correct. And probably a good deal more, because there are children buried in the rural districts who died from diphtheria where no diagnosis ever was made. In fact, that has occurred to me in Aurora.

One morning early I was called up by a mother who said, "Doctor, my child died with the mumps. How can I get a burial certificate? I have no doctor." Think of it! Mumps. When I got there, there were four others nearly dying from diphtheria. So, the chances are that the one child that died didn't die of the mumps at all. How often does that happen elsewhere? Of course that couldn't happen in LaSalle. Of course not, because there is no diphtheria there. But there has been some in Aurora.

Now in regard to scarlet fever quarantine. If we are going to quarantine at all, and I quite agree with the doctor that quarantine hasn't got a lot to do with any contagious disease, but it has something to do with it, because Dr. Rawlings one time objected to discontinuing quarantine, even in chickenpox. I believe maybe he was right, because some children are pretty sick even with chickenpox, even if they don't die. In any event, if we quarantine at all, why not quarantine the adults that haven't had scarlet fever? Now, scarlet fever distinctly is not a children's disease absolutely. A good 20 per cent. of scarlet fever is adult. Now, why quarantine the 80 per cent. and let the 20 per cent. run at large? Because these people are going

to come down sooner or later. I made that statement up at Elgin one time. They thought I was a little hypercritical in quarantining adults, that I had no authority from the State Board of Health to do that, but I took the authority, and the State hasn't kicked about it yet.

Now, in Aurora, unless they have previously had scarlet fever, they can either take an immunizing dose which Dr. Parks of New York approves or they can go into neutral quarantine for a week to see what is going to happen. The cold statistics show that over 20 per cent. of the scarlet fever cases in Aurora were adults; that is, adults over sixteen years of age. And I found when I was attacked up at Elgin on that proposition and when Dr. Hoyne, who happened to be there, said it was between 18 and 19 per cent., they let me off. Well, I had my own statistics from Aurora for ten years, and it couldn't be altogether an accident any more than it was altogether an accident that the doctor didn't have any diphtheria in three years. That was good work of some kind and a lot of luck with it. Because in a community of 30,000 you have no right to draw conclusions from statistics until you take a period of at least ten years, giving you in ten years a population of 300,000 approximately, and that is too small a number to take statistics for definite conclusions.

One more thought and I am through. For nine years I took the deaths from diphtheria in Aurora and added their ages and divided by the number of deaths, and the quotient was a little more than six, and that made me look up the federal statistics. I found that over half of all diphtheria deaths occurred before they ever enter school.

Dr. A. A. Crooks, Peoria: It hardly ever happens, my good friends, that Dr. Ailes and myself don't come to grips on some statement that either he or I might make before one of these sessions, and it has always been in the best of spirit. Now Dr. Ailes has given us a lot of things to think about this morning, things that have been to the foreground in the State of Illinois for quite some years. Not one of us excepting friend Ailes has had the temerity to question the written rules and regulations to the same extent that he has. However, he is not alone in questioning some of our strict quarantine procedures, and there are only a few of us, I feel, remaining who are on the firing line daily who hold strictly with what is now our rules and regulations governing communicable diseases in the State of Illinois.

There is a background here which didn't commence in Illinois, but more particularly in the East. I have a very vivid recollection of attending, by invitation, a round-table discussion in Buffalo, I think, at the session of the A. P. H. A. when this very question was discussed by those invited, and there seemed to me at that time an unanimity of opinion and concerted action, particularly on the part of those members present from the eastern states and the states immediately west of the Alleghanies, to abolish many restraining regulations, particularly pertaining to chickenpox, mumps, whoop-

ing cough and scarlet fever. I could not help getting the impression that they were willing to destroy many of the restraints that are presumed to come from a rigorous quarantine.

The matter of scarlet fever engaged most of our attention, and in those days I thought that I knew something about scarlet fever, since which time I am doubtful if I do know much about it, because my opinions have had to be revised repeatedly.

I serve a daily school population of 16,500. I have seen cases in the late prodromal stages, even eruptive, in the school room. Their presence had not elicited the attention of the teacher, and I have, on several occasions, had pupils vomit in the class room or corridors and, without any exception, there has not come a secondary case from such contact. It goes without saying that strict methods were applied, that all of our well-known methods of control were immediately applied, but not one secondary case has come.

It is a practice with me not to close a school or schoolroom, but where we have a bad contact to inspect daily every child of such known contact. This is not done by the nurse. This is done by myself. The school nurse makes a home contact of all absentees during the incubation period of all exposures in such a room.

Like Dr. Haan, I have had missed cases return to the school room that had escaped every one of us in charge. To my knowledge, I have not had a secondary case arising from such an exposure, if it is an exposure. I can only come to the conclusion—and I may have to revise this in another year, because I have had to revise many of my opinions on scarlet—that we are getting our cases primarily, I feel, in the main from the carrier.

It was heartening to me that Dr. Orvis of Winnetka was able to do as much as he has in his laboratory in isolating the streptococcus hemolyticus. I have not had that good fortune. The laboratory that serves us has not been able to definitely differentiate the streptococcus hemolyticus from the other streptococci groups in the numerous nasal and pharyngeal cultures submitted. There is so much commotion and such an insistent demand that we release some of our rigorous quarantine procedure, particularly the length of time that we should quarantine our scarlet fever cases, I have been particularly anxious that the laboratory findings would, as in diphtheria, be the means of raising our quarantine. It is the logical method, it would seem to me. I would be glad if Dr. Orvis would further enlighten this group as to his method of technic, because friend Orvis happens to be the only man of my acquaintance who seems to have had such a lucky experience.

I do want to register this, and this is in contradiction to what Dr. Ailes has suggested, that, until such time has arrived when we know more about scarlet fever, I will have to string along with Parks of New York that we maintain our present quarantine, rigorous though it is, of the case and contacts until such time as we know that we are not releasing on the public

a person who is a potential carrier or possibly still an active case.

This was very enlightening (referring to chart). We have had in Peoria, or did have, a similar experience. The history is this, that up to seven years ago Peoria was ravaged annually with diphtheria; some years virulent, other years not. About this time I went into the school system and I was looking for diphtheria and particularly was I looking for the focal point. I didn't have long to wait. One of our school principals called me and said, "I have a number of sore throats in a particular room. Would you come down?" I responded as rapidly as possible, stopping at the city health department in the city hall to get an armload of culture tubes, and we received as a recompense for our trouble eight positive cultures. They were taken care of, of course, in the usual way.

The next year we had two cases of diphtheria in a population of approximately 100,000 population. Then the succeeding year two cases; the succeeding year three cases; the next year, seven, and the next year, nine, and then this year the calves got out. For what reason I don't know. It was endemic mostly and becoming epidemic along in August, an unusual time of the year, you will agree. But at the opening of school we had a lap full of diphtheria of the virulent type.

We have, I feel, in a comparable way as good physicians as you would find in any community, who have been taught the necessity of early diagnosis, of early, large dosages of antitoxin. With only three exceptions, I think, these cases were found early. They were given a heavy dosage of antitoxin, and yet our mortality is practically 40 per cent. or just under 40 per cent.

Now, privately I have told friend Ailes that I feel that he has been traveling with a lot of luck. Dr. Orvis, I think, gave him the answer. In a diphtheria free population, his reintroductions will eventually cause him trouble. It can't help it.

Then that calls to my mind this graph (referring to chart) and here again may I take some exception to Dr. Ailes in his line of argument? He shows here in the four-year age group a marked increase in incidence; in the six months, two, and the plus six months—I dare say that's between six months and a year, Dr. Ailes?

Dr. Ailes: The first half of the year and second half.

Dr. Crooks: Three, and then in the first year they jump to 20, and you can see a heavy mounting. Dr. Ailes went on to say that these graphs—his local experiences there—would lead him to believe that intense activity, if activity was to be carried out whatsoever would be in this age group, the six-year child; that he would get rid then of the great portion of this incidence and the secondaries in this age group. It sounds logical. But would it not be better, if there is any efficacy whatsoever in toxin-antitoxin immunity, to get rid entirely of this incidence by carrying out what we feel was good practice, of toxin-antitoxin immunity carried on vigorously from the age of six months

through pre-school life? Does it not seem logical to you that we would be saved this incidence and this mortality.

It is a known fact that in the East, in Massachusetts and particularly in the State of New York, they have brought down their incidence until it has become almost negligible in the spots where they have done the greatest amount of immunizing activity. But this experience doesn't always hold 100 per cent. true. However, it is sound procedure.

Dr. Ailes hasn't told all of you, and I am sure some of you do not know, that he is working under, in many respects, conditions that tend toward ideal.

Dr. Ailes: Thank you.

Dr. Crooks: He is not a political appointee. He has an endowment at his right hand, and sufficient money to carry on all of this added activity that he mentions. He has the cooperation as much as any health official, I think, has, and the confidence of his practitioners, and that might be one of the favorable reasons for this low incidence.

I don't hold with one of the other discussants that there may have been missed cases. I hardly believe that is true. I believe it has been merely luck. That he will continue with such luck is hardly to be believed.

I don't know what other thing I might say, excepting to repeat just one thing, that until we know more about diphtheria, until we know more about scarlet fever, scarlet fever particularly, I believe this to be the wrong time to placate the general public and placate, if you will, even the family physician by lowering our standards of quarantine procedure, until such time as we know much more about it. The very fact that it is mild is no reason why, I think, we should lower our standards of protection, because it has been the experience of every one of you, I am sure, that of the known contacts that you are able to connect up with that you very frequently see a virulent case following a contact with a mild case.

I don't feel that we are in a favorable position right now, and I deprecate some of the changes in the Rules and Regulations that have gone into effect within the State in the last two years, taking away some of the protection in the so-called milder communicable diseases, such as chickenpox, mumps and German measles. Instead of lowering the incidence of communicable diseases, my local chart would show you that it has raised it.

Dr. C. A. Earle, Des Plaines: I regret exceedingly that I did not get here earlier. I live forty miles from here and, after driving for an hour, I found we were only five miles nearer Joliet than we were when we started.

It may be presumptuous for me to state the basis upon which I rise to discuss this paper. I happen to be the medical attendant of a large orphanage numbering 1,200 children.

Diphtheria has been the most serious disease we have had there. We lost more cases from diphtheria up to eleven years ago than from all other diseases put together. The year immediately preceding this preventive

work we had eighty-five cases with seven deaths. We have been doing this work for eleven years and we have not had a death since.

It would be very interesting if the essayist of this paper would start a campaign of Schick testing in that community to see how many are really susceptible and how many are not susceptible.

There is an old saying that he who has once been a drinker will drink again. In any town that has not had a case or a death from diphtheria for three years, depend upon it, it will not be many moons before there will be cases and there will be deaths. In my experience, diphtheria begins like a storm out of a cloudless sky. The first thing we know of the presence of diphtheria in a community is the death of some child. LaSalle is no different. Any town north of the Mason and Dixon Line is going to have diphtheria unless they are immunized. Diphtheria in the south is not a serious condition at all; but it is in the north.

To show you the effect during an epidemic, when we had eighteen cases of diphtheria in this institution, we found that the incidence of diphtheria in the Schick negative children was 1 in 732. Seventeen of thirty-four children who were Schick positives got clinical diphtheria, an incidence of one in two.

It is a well-known fact that the incidence of diphtheria is but little influenced in any community until at least half of the children have been immunized.

There is one thing that the health officers have not featured all they ought to do. They ought to preach the gospel of testing and retesting. Several years ago I made the statement that there would be other diseases besides diphtheria in which a test may be of very great importance, and sure enough within a year or two we get the Dick test. And I think the general practitioner, health officers and everybody ought to preach this doctrine of testing the children as often as they can get a chance to do it. In our own community we go into the schools and test all for whom we can get consent. Then we tell them to go to their doctor to be immunized.

Now, just one word as to scarlet fever. Scarlet fever immunization is meeting practically the same opposition as immunization against diphtheria. Even now there are many people who do not believe in it. Once in a while there is a doctor who does not believe in antitoxin. It was not so many years ago that a very prominent surgeon in Chicago wished to know whether antitoxin had actually come to stay. There are a lot of doctors who do not believe in T. A. They do not understand it. To my mind there is no procedure in the whole history of medicine that has a more scientific basis than diphtheria immunization has. It is a mystery to me, in a way, that anybody ever doubted it. If the doubters would have read Theobald Smith's experiments on the guinea pig—and diphtheria in the guinea pig tallies exactly with diphtheria in the human being—and how he told Parks and told the world that children could be immunized the same as the guinea pig, they would certainly have believed in it.

Several of the great pediatricians in Chicago at first discouraged T. A. immunization. Today there is opposition to immunization against scarlet fever.

Some of you have read, and probably you have forgotten, what is being done by some Japanese doctors in Manchuria, where they have so much scarlet fever. A negative Dick test is nearly as sure an immunity against scarlet fever as a negative diphtheria test, in my opinion.

This winter we had scarlet fever in the little town I am from, Des Plaines. Two years ago I tested the children of all that I could get consent for, in a parochial school. Six out of eleven children that showed the positive Dick test got scarlet fever. Not one in that school that had a negative Dick test got scarlet fever.

While the morphological, agglutination, biological and neutralization differences among the various hemolytic streptococci are not great, I believe it has been shown that they do differ, and that a negative Dick test is a fairly sure indication of immunity to scarlet fever.

Dr. I. D. Rawlings, Chicago: Our chairman asked us to discuss the question of modified quarantine. In 1912, when Dr. George B. Young was Commissioner of Health, he authorized me to carry out some experiments as to modified quarantine. We devised what we called three classes of quarantine. Class A was where we had a trained nurse set aside in a room with private toilet facilities and bath. Class B was where someone outside, either a practical nurse or the aunt or some relative, would come in and serve as the attendant in separate room for case and nurse. Class C was where the mother acted as nurse, and practically no isolation was possible. We carried out quite an elaborate experiment with these three classes of quarantine and the result was published in a joint paper in the *Journal A. M. A.* at that time. The result showed there were no secondary cases of contagion in diphtheria and scarlet fever quarantine if we separated the patient from the rest of the family with a graduate trained nurse that knew all the precautions. We also had much fewer secondary cases where we separated the patient with the practical nurse. With the mother as attendant and no isolation, the result was about as at present with an unmodified quarantine.

We were so impressed with the modified quarantine experiment that we went ahead and used it extensively. We continued modified quarantine until shortly after Dr. John Dill Robertson became Commissioner of Health. Then the Director of Public Health of Illinois came into Chicago and said the supreme court had ruled that it was class legislation for Chicago to have modified quarantine when the whole State wasn't getting it, and they made us stop using the modified quarantine. I went down to Springfield in 1921; I think we had not been there more than eight or nine months before we arranged, where any community could comply with the requirements, for a modified

quarantine. Why Dr. Ailes waited until 1926 to use modified quarantine instead of using it in 1922, I don't know.

Dr. Ailes: I didn't come to Illinois until then.

Dr. Rawlings: It was available anyhow before you came, doctor. We believe very thoroughly in it. And since I have returned to Chicago to the health department the situation there is so different from what it was in 1914 and 1916, or even in 1921, that I am not sure that modified quarantine will work as well as formerly.

No one, I think, has brought out in this discussion the congestion problem in the control of those two major contagious diseases. It has always been a sore spot to me that Chicago has so much more diphtheria and scarlet fever in proportion than the rest of the State; Chicago for years has had a lot more diphtheria than the rest of the State of Illinois, with about the same population as Chicago. We believe one big reason is Chicago's greater population congestion. Dr. Ailes doesn't have the great big apartment houses nor is quarantine in his city complicated by what we call little utility apartments where there will be three families with one toilet and bath off a common hall for each of the three separate little two-room apartments for each of these families. Isolation of the other families if contagion occurs in one of them is impossible. Fortunately, in Chicago we have an isolation hospital and we make it so difficult for the other families there that they bring pressure upon the family with a contagious disease to allow the child to go to the hospital and relieve the quarantine entirely.

I believe thoroughly in modified quarantine where you can get conditions such as LaSalle has and also where conditions such as exist in many of the larger apartments in Chicago, but it won't work in the apartments where you have one toilet and bath for three or four small families.

As to the fatalities in scarlet fever, we find that it is gradually increasing. One point we think is largely responsible for this is the missed case. We have a number of instances of this kind where a child will go home Friday afternoon and have a little vomiting attack, a little temperature Friday evening, and a slight rash which disappears by Monday morning, when patient goes back to school. These children are not seen by the school doctor because our rules only require that the child be sent to the school officer where they have been absent from school for one day or more.

In the mild case in school our experience doesn't agree with that of Dr. Crooks that these mild cases don't spread the contagion. I wish he would come to Chicago and let me show him school room after school room where we get two or three or four up to eight cases out of a school room. We are having many experiences from missed cases of that kind. The Doctors Dick have convinced me that there are scarlet fever carriers as well as these missed cases that convey the disease to others.

COMMENTS ON THE X-RAY EXAMINATION OF THE APPENDIX*

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In the acute stage appendicitis is usually not a matter for x-ray investigation. The symptoms and course of the case are much more reliable for the diagnosis than any roentgen findings unless one wishes to exclude a gross lesion of the lungs by a roentgenogram of the chest, or to ascertain the exact location of a lower right quadrant pain in relation to the tip of the cecum. In which case it may be permissible to give the patient a barium enema and to palpate the abdomen carefully under the guidance of the fluoroscopic screen to make note of the relation of any localized point of pain on pressure to the visualized cecal shadow. In an acute case one does not anticipate that the appendix may be visualized nor does he use much force in the introduction of the opaque material by enema for fear of overdistingending the cecum. In most of his cases of acute appendicitis the urgency of the symptoms has been so clear that the writer has not thought of employing the x-ray study at all; in a relatively small proportion of doubtful cases the opaque clysma has been used as suggested in the foregoing remarks. It is probably not justifiable to give opaque material by mouth to a case of suspected acute appendicitis. A roentgenogram of the chest does not always show evidence of a pulmonary or basal pleural affection in the early hours of pneumonia or pleurisy; hence, too much reliance must not be placed upon the x-ray study even for that purpose at the moment when an immediate differential diagnosis between pneumonia and appendicitis is often imperative.

Chronic appendicitis is said by many authors to be non-existent; they claim that such a diagnosis is an error of diagnosis. This idea finds some support in the frequency with which we encounter appendectomized patients still suffering from the pains for which the appendectomy was performed. While the writer was on the staff of the Battle Creek Sanitarium, he once made a census of some two thousand consecutive admissions, finding that approximately twenty-five per cent of them had had the appendix re-

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moved for what was diagnosed as chronic appendicitis, but without relief of the symptoms. A relatively small proportion had undergone removal of the appendix after one or more acute attacks, and these were almost all cured of their troubles; but the majority of the cases had not suffered definite acute attacks with fever, abdominal rigidity, slight leucocytosis, or nausea and perhaps vomiting, but had complained of more or less indefinite right lower quadrant pains or aches for which no other explanation than appendicitis had been considered reasonable; but appendectomy did not afford relief.

Whether or not there is such a disease entity as chronic appendicitis, the fact remains that we are obliged to deal with many cases of chronic right lower quadrant distress, in the investigation of which the roentgenological study is of great value. We all recognize the frequency with which a patient found to have a urinary calculus, especially in the right ureter, is also found to have had the appendix removed. Hence, a preliminary to any study of the appendix region should include a careful consideration of the possibility of ureteral stone or other obstructive urinary pathology. Right adnexal affections, and especially a pelvic peritonitis, often result in adhesions involving the appendix, in the treatment of which removal of the appendix must be associated with the appropriate gynecological surgery.

In the earlier x-ray investigation of the appendix, attention was devoted almost exclusively to the appendix region itself, and to the appendix particularly, with special reference to its size, shape, position, and mobility. One of Europe's greatest radiologists, Groedel, in 1913 made the statement that the appendix was surely pathological if it visualized, since in several thousand opaque meal studies of the alimentary tract he had seen it only twice. Since then much progress has been made, and it is now recognized that the normal appendix should always visualize with the opaque meal. We may not recognize such an appendix at the time of our screen or film studies for several reasons: the appendix may fill and empty so quickly that we do not happen to catch it at the appropriate moment; the appendix may lie closely adherent behind the cecum, as is so often the case when the cecum is elongated and very movable, and

empty within the time required for clearance of opaque materials from the cecum. The acutely or subacutely inflamed appendix probably does not fill with barium, though in such case there should be at least a tell-tale localized tenderness on pressure over the region of the appendix as determined by screen-controlled palpation of the visualized cecum.

Later, attention was directed less to the appendix itself and more to the right side of the colon and the terminal ileum. Lane's kink came in for its share of attention. Jackson's membrane, other membraniform structures about the ascending colon and hepaticocolic adhesions held the stage for a while. Dropping of the transverse colon with the mythical resultant kink at the hepatic flexure was widely discussed as a cause of cecal stasis and the resulting stagnation in the appendix. But finally we came to recognize that there were other more potent and reasonable causes for the prolonged delay of fecal materials in the cecum than any of the above, viz, the normal and abnormal manifestations of the motor processes in the colon.

The right half of the colon may be considered as the retort in which nature attempts to finish up the digestive and absorptive processes which are the chief function of the small bowel, and there seems to be normal provision for a prolongation of the stay of bowel contents in the cecum and ascending colon out of proportion to the normal stay of materials in the rest of the large bowel. From the right third of the transverse colon on to the rectum the colon serves the purpose of a conducting tube to carry to the rectum and ampulla waste residues destined for discharge from the body. We find in the right half of the colon that the prevailing peristaltic influence is antiperistaltic or retrograde, and Cannon found in animals that there was a definite contraction ring just to the right of the midline in the transverse colon from which these antiperistaltic activities had their origin. The writer nearly twenty years ago observed a similar contraction ring in the transverse colon of man, his observations being published in the *Proceedings of the Radiological Section of the International Congress of Medicine* held in London in 1913. The cecum is also the seat of active haustral churning movements, but in addition there occasionally arise in the proximal

colon spontaneous mass peristaltic movements, powerful ring contractions, which carry before them the mass of fecal content of a large segment of the bowel from the right or "retort" portion of the colon, into, and often through, the conducting portion of the large bowel (the remainder of the transverse and the descending and iliac colon) into the discharging portion of the large gut (the lower sigmoid and rectum).

When there is an organic obstruction in the conducting tube, and especially in the distal portion of it (the descending or iliac colon), there is a resulting distension of the cecum and ascending colon. The writer has seen this occur so strikingly that it seems profitable to recall one case. A patient with a small annular carcinoma in the iliac colon, who had never suffered distress in the left side of the abdomen, was brought to the hospital for emergency operation for what was thought to be a ruptured appendix. Operation revealed a rupture of the end of the cecum with general peritonitis, the appendix being a participant in the general inflammatory condition of the peritoneum but not primarily involved. The chief stress from the obstruction in the distal colon had been felt in the cecum and ascending colon, the iliac colon obstruction causing marked exaggeration of the retrograde influences which normally occur in the proximal colon.

We all know how hard it is to cure up a fistula of the cecum by non-operative means, whereas a fistula elsewhere in the colon usually closes spontaneously with ease. Non-malignant organic obstructions in the distal colon also produce distension of the cecum and ascending colon, thereby causing pain on the right side, especially in the tip of the cecum. No wonder in such cases the appendix is found to be dilated or enlarged, sharing in the stasis of fecal contents. And it is not difficult to comprehend how it is that a large class of patients, free from organic colonic obstruction but suffering from irritability and spasticity of the distal colon, also suffer mostly from right-sided symptoms though the spasticity and colitis affect the left colon; for the spasticity of the descending and iliac colon results in a state of contraction of that portion of the bowel operative for a large proportion of the twenty-four hours of each day, with its associated distension of the right side of

the colon and the resulting pain in the cecal region which most of these patients find more distressing than the pain over the left side of the colon which is the affected segment. Is it any wonder, then, that many such patients are thought to have chronic appendicitis, or that the removal of the appendix does little or nothing to relieve the symptoms which led to that diagnosis?

However, even in consideration of the foregoing, there are still many facts relating to the appendix which one may ascertain by careful x-ray study. For this purpose both the barium meal and barium enema should be utilized. There are many physicians who seem to depend upon the opaque enema alone for information concerning the colon. This is a mistake. The preceding paragraphs relating to the motor physiology of the colon should make clear that the meal is also necessary in order to avoid some of the most common pitfalls in the diagnosis of chronic appendix disease. Too much emphasis cannot be placed upon the necessity of making a complete gastrointestinal x-ray study with both the opaque meal and the opaque enema in every case.

If the appendix fills (and all normal and many pathological appendices should fill after the opaque meal), we are able to study the question of size, position, length, mobility, concretions, and coincidence with a point of possible pain on pressure. Some of these points are of relative unimportance, but all of them should be recorded in order to include the valuable observations which may be missed unless one follows a routine.

The size of the appendix is variable. It should be recalled that we see in the roentgenogram the shadow of the lumen of the appendix, not the appendix itself. A very large, long appendix may be roentgenologically normal, provided it empties itself easily and does not harbor concretions. An unusually long appendix is noteworthy because of the increased menace to the patient. A narrow, thin line may represent the lumen of an appendix undergoing obliteration. In some cases one sees the proximal part of the appendix of average caliber while the distal part of the organ is registered as a thin line; such a shadow indicates that atrophy has begun in the distal half of the appendix, perhaps as Nature's attempt to obliterate the organ following an acute

inflammation. On the other hand, one may see a club- or bulb-shaped appendix tip with a thinner line of connection with the cecum; such an aspect indicates much more of a menace to the patient, suggesting that in the past there has been an acute process from which recovery occurred, but which caused a dangerous narrowing of the proximal half of the organ. Occasionally one sees a very wide-lumened appendix, suggestive of a tumor formation. Diverticula have been recorded by Spriggs and Marxer but the writer has never been fortunate enough to have recognized appendical diverticula in a case which came to operative proof. In carcinoma or other organic stenosis of the ascending colon, one often sees a gigantic appendix, which we take it, is a natural result of the overdistension of the cecum caused by the continual arrival of new intestinal contents through the ileocecal valve in spite of the obstruction in the ascending colon.

As above suggested, the length of the appendix is of no great practical importance. Appendicitis has occurred in the very short stump of the appendix left behind after an incomplete appendectomy. It has often seemed to the writer that the appendix in childhood is proportionately much longer than the adult appendix.

The mobility of the appendix may be tested in at least two ways: First, by manipulation with the gloved hand under the guidance of the fluoroscopic screen, one may actually test the mobility of the appendix in relation to the tip of the cecum, the terminal ileum, the abdominal wall, and perhaps the sigmoid; or in lieu of the gloved hand a wooden palpator or distinctor may be used, and the appearance of the appendix under the pressure of this wooden palpator recorded by films exposed while the pressure is being applied. Second, by comparing the appearance of the appendix in several roentgenograms, it may be evident that there are no binding adhesions because in one film the appendix may lie in one position, and at a completely different angle in another, so that its free mobility is self-evident. On the other hand, the mere fact that in several films the appendix may seem to lie in a constant relation to some other viscus by no means justifies the conclusion that adhesions or fixation exist, though it may be suggested; such an appearance should always be tested by actual palpation before a diagnosis of

fixation is made. Again, the retrocecal appendix may seem to be freely movable when actually it is usually closely adherent to the cecum and moves with the cecum, the cecum being the freely movable organ. The low-lying, pelvic cecum is usually endowed with a long mesocecum permitting an extreme grade of cecal mobility; and in just this type of mobile cecum it is an anatomical fact that the appendix is nearly always adherent retroceally.

A record of the ability of the appendix to clear itself of its opaque shadows is of importance. Perhaps the most important functional evidence against the appendix is its failure to empty itself readily. I think we may say that in general the appendix which retains its opaque contents, retains also its non-opaque contents habitually, and that such retention constitutes a menace to the patient—the greater the degree of retention, the greater the menace. Pirie of Montreal told of a case where the appendix retained opaque material forty-two days and on the forty-third day the patient suffered an acute fulminating appendicitis requiring immediate operation. The writer has often seen retention of opaque material in the appendix for a week or more, and in one case an acute appendicitis supervened on the fifth day. A barium concretion probably is of no more significance than a non-opaque concretion, as a menace to the patient.

Non-opaque concretions may be recognized as vacant spots in the appendix shadow, one or more small, rounded or ovoid, clear areas appearing within the opacity representing the appendical lumen. Following the advent of opaque material into the appendix, barium-mixed concretions may form, and appear later as a string of beads, due, of course, to the drying out of the appendical content. The occurrence of concretions, whether opaque or translucent, of course indicates the presence of retention and, just in proportion to the number of days the shadows persist, constitutes a menace to the patient.

Foreign bodies in the appendix are fairly common, aside from the fecaliths above referred to. Calcareous bodies are rarely seen, though in the writer's experience this has been noted perhaps a dozen times. One case may serve to illustrate the significance of such calcifications: A young man who had undergone an emergency operation

for ruptured appendix with general peritonitis, for which simple drainage was done without appendectomy, returned to the clinic about six months later with a renewal of symptoms indicating appendicitis. A roentgenogram revealed a calcareous shadow near the tip of the cecum, bearing a constant relation to it, and moving with the movements of the cecum. Another operation revealed an appendical calculus, which, of course, had not been found at the first operation. Among appendical rareties, the writer has also had cases of common pin, birdshot or beads and similar foreign bodies in the appendix, and two cases where an ordinary sewing needle had found its way from the cecum into the tissues of the mesoappendix.

Rupture of the appendix is ordinarily not a matter for roentgenologic research, for the urgency of the case is such that operation is done at once. However, there has recently been published the roentgenograms of a case of rupture of the appendix with periappendicular localized abscess, well walled-off, where the opaque enema penetrated into the abscess pocket and gave a characteristic shadow.

Unusual positions of the appendix are often observed. The inverted cecum with the appendix showing along the lower costal margin is perhaps the most common of the striking anomalies of position. A little ingenuity of technical manipulation during the fluoroscopy will permit detection of the inverted cecum and account for the high position of the appendix. A true left-sided appendicitis may occur in a case of complete transposition of the viscera, or in incomplete rotation of the colon. A young woman who gave a history of two acute attacks of appendicitis, where the attending physicians felt sure there was no question of adnexal disease, was referred for surgery with a request for a very small incision; through the small opening the writer could find nothing but small bowel, not even any omentum, until it suddenly occurred to him that he was dealing with a case of incompletely rotated colon and that the appendix would be found on the left side. Lifting up the wound edge with a retractor, he reached over well to the left side of the midline and was able to seize and draw over to the right-sided incision the freely movable cecum and to remove the appendix without difficulty. When in doubt

as to the situation of the appendix, it does not harm the patient to make a pre-operative opaque injection of the colon for the information such a test will give concerning the morphology of the cecum.

Another unusual anomaly of position of the appendix worth mentioning is within a hernia. Our experience includes several cases of appendix within an inguinal hernia and one with a ventral hernia.

After operation for removal of the appendix, it is often interesting and helpful to study the cecum, with reference to sacculation at the site of the appendical stump, fixation of the cecum to the abdominal wall (the result of the operation or of the appendicitis which led to the operation), or distortion of the cecum attributable to adhesions which must be differentiated from neoplastic distortion; and in an occasional case it is surprising to find that the appendix is still present in spite of the history that it has been removed. However, one should be extremely careful about reaching such a conclusion in the face of a history of an appendectomy, for strings of barium-mixed mucus in the terminal ileum or a fine layer of barium retained on the wall of the cecum and seen on profile may resemble the shadow cast by the appendix and lead to erroneous conclusions.

Some years ago Bastedo called attention to the production of pain and tenderness in the right iliac fossa (at McBurney's point) on inflation of the colon by means of a rectal tube, a sign which he thought of value in chronic appendicitis. Long ago the writer observed that a similar sign is often elicited in appendix disease when the patient is given the opaque enema; shortly after beginning the injection of the opaque material, the patient often complains of pain in the cecal region.

One should not lose sight of the evident fact that an x-ray examination of the appendical region during the interim between acute attacks may fail to give any evidence upon which to support a diagnosis of recurrent appendicitis. In other words, just as an interval operation for the removal of an appendix which has certainly given rise to acute attacks may show up an appendix of apparently perfectly normal appearance the removal of which gives complete relief, so also roentgen study during an interval of

quiet between attacks may show no x-ray evidence of abnormality.

It is thus apparent that much information can be gained concerning the appendix through x-ray study, especially if one employs both the opaque meal and the enema. Some of the information is of interest but hardly of practical importance toward a diagnosis of a surgical lesion. However, the location of the tip of the cecum, whether high or low in the abdomen, whether fixed or movable; the coincidence of a point of localized pain on pressure over the tip of the cecum; the presence of appendical retention, especially when persisting for several days after emptying of the cecum; the presence of concretions or other foreign bodies in the appendix; the existence of partial obliteration of the proximal portion of the appendix with clubbing and distension of the distal half; demonstration of definite adhesions of a disturbing character—these are x-ray signs of value in the diagnosis of appendical disease, and we believe they are well worth investigating. Carman once made the statement that the value of the roentgen signs of appendicitis appeared to depend not only upon the examiner's endeavor but also, to some extent, upon the degree of his enthusiasm. This is true only to a certain extent. There are a great many things about the appendix, useful toward a diagnosis and toward a recommendation for therapy, which one may learn by careful roentgenological investigation.

303 East Superior Street.

DISCUSSION

Dr. O. M. Walter, Chicago: Our essayist has presented a most interesting paper on the x-ray study of the appendix. There are few ailments which are met with so often in the practice of medicine which are so frequently misdiagnosed as acute or chronic appendicitis.

Fixation of any normally movable organ usually brings about untoward symptoms. The appendix is no exception to this rule. The abnormalities of the lumen which can be studied very satisfactorily with the x-ray have a very important bearing on the function of the appendix. We may not recognize chronic appendicitis as a disease entity, but there are chronic conditions in and about the appendix which do cause symptoms, and which may bring about an acute attack of appendicitis. Tubercular appendicitis may be a true chronic inflammatory process of this organ.

Nearly all deaths from appendicitis could have been prevented. They may have been due to procrastination

on the part of the patient or the physician, but are more often due to misdiagnosis, or a belated diagnosis. Anything which will assist in making a more accurate diagnosis of pathological conditions of the appendix should be welcomed by the medical profession.

Dr. Isaac Gerber, Providence, R. I.: I was very much interested in Dr. Case's presentation. For a good many years I have been following his work about watching the effects of various disturbances of the left side of the colon showing symptomatology in the lower right quadrant. I have been particularly interested of late in watching the manifestations of functional disturbances that one gets by very careful study of barium enemas.

I should like to ask Dr. Case whether he can tell me anything about the significance of increasing the antiperistalsis in the distal half of the colon. There is the normal site for antiperistaltic movements, but in a large group of cases I have seen where you introduce a slight amount of barium through the tube, it fills out the rectum normally; you shut it off and within fifteen seconds, with no pressure at all from the irrigation, that material will be passed back rapidly to the cecum and begin to pour into the cecum with spastic action in the descending colon. If you will admit more into the colon you can watch each portion go in the same way with extreme spasticity of the descending colon and rapid antiperistaltic movements.

In these same cases, after defecation you will frequently find the cecum dilated and containing a more dense barium shadow than it contained before defecation. I can do nothing more than describe it to the physician who has referred it to me in the absence of adequate anatomical basis for it and hope that perhaps he will understand.

There is another thing with regard to the appendix itself. During the past three or four years the Viennese roentgenologists have been using Czepa's method which has become very popular. This is a very simple and very practical way to visualize the appendix when not otherwise shown. If by the forty-eight hour examination you are convinced there is some pathology in the neighborhood and yet you cannot see the appendix, if there is a sufficient amount of barium still in the colon let the patient go home and that afternoon take a good sized dose of Epsom Salts and come back in the morning for examination. If there is not much barium in the tract you can mix salts with the barium sulphate and have him report the next morning, some eighteen hours afterward.

The theory is that the Epsom salts exacerbate the normal anti-peristalsis in the proximal half of the colon and by that continued peristaltic contraction enough barium is forced into the partially obstructed appendix in cases where under ordinary conditions you cannot see the appendix. By this simple method one can very often clinch definitely a diagnosis of pathological appendix.

Dr. I. S. Trostler, Chicago: Within the last two months I have had three patients referred to me with

pain in the region of the spleen and on fluoroscopic examination thirty hours after a barium meal, I found that the pressure over the visualized appendix caused the pain in the splenic region. In those three cases I made a diagnosis of referred pain due to diseased appendices. All three cases were operated on and all proved to have chronic inflammatory appendix disease.

Dr. J. T. Case, Chicago: Acute appendicitis is like a fire; in its presence, one cannot delay to make time-consuming investigations. Most of the remarks made by Dr. Walter I agree with thoroughly.

Regarding Dr. Gerber's remarks, I would not think of giving barium by mouth in a case of acute appendicitis. As to antiperistalsis, about seventeen years ago I published a report regarding this matter. It was the report of a case in which preoperative administration of epsom salts had dammed up the opaque material in the cecum so that it was practically impossible to dislodge it by cleansing enemas preparatory to operation, although in a previous barium meal study carried out a week or so before the opaque materials passed through with ease. I advanced the theory then that these irritating purgatives exaggerate antiperistalsis and should not be used as a means of cleansing the bowels preparatory to a surgical procedure.

ACTIVE TREATMENT OF THE COMMON COLD IN CHILDREN

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The common cold is such a simple ailment that it is difficult to explain why we know so little about it. Until recently text-books mentioned its high morbidity rate and little else. The fact that colds, like pimples, were considered uninteresting minor disabilities rarely causing death, may partly explain our lack of knowledge concerning the cause and pathogenesis of this most common of all human maladies. Failure to determine the active cause of the common cold, however, has not been because of any lack of careful research, but in this, as in other diseases of unknown etiology, the field of therapeutics is wide open.

Shibly, Mills and Dochez¹ recently reported the results of experiments with chimpanzees in the production of the common cold. These investigators came to the conclusion that the contagious cold in humans is caused by a filtrable agent, most likely one of the group of so-called sub-microscopic viruses. The authors make the significant statement that the common cold infection stimulates into greater activity the potential pathogen viruses which may happen to be present in the upper respiratory tract. This

may explain the marked secondary activity of such organisms as the pneumococcus and streptococcus hemolyticus which not uncommonly lead to the severe sequelae of the common cold. The work of Long and Doull² in which human volunteers were inoculated with the filtrate from the nasopharyngeal washings obtained from patients during the first forty-eight hours of the common cold substantiates the hypothesis that the contagious cold is caused by a filtrable virus.

If we could be certain that the common cold would remain a common cold, we could, with patience, await final word from the laboratory concerning its cause and prevention. In the meantime, and so long as sequelae of serious consequence follow colds, we should accept the present-day dicta of prevention and we should not consider the running nose any less worthy of our most careful supervision than the more dignified diseases.

Those who are versed in the principles of hygiene know that all factors which lower the resistance of the respiratory tract deserve consideration in the prophylactic treatment of the common cold. And in a sketchy sort of manner allow me to enumerate some of these predisposing conditions as they occur in children. Foremost, is poor nutrition. And this is not gauged by reference to a weight chart alone, but rather does it imply the child whose hemoglobin count is low, whose muscles of respiration are weak, and whose tissues are soft and flabby. This is the group of chronically-tired children who do not get anywhere near the number of hours of sleep they require. Rickets produces increased sensitiveness of the mucous membranes of the respiratory tract and may be ranked just below poor nutrition. Enlarged or infected adenoids and tonsils; and congenital or acquired heart disease are other factors. Chilling of the body surfaces, wet feet, improper clothing and the rapid variation of climatic conditions such as is common in many localities are, likewise, prophylactically important.

In no way meaning to take issue with laboratory investigators, I sometimes wonder if the common cold is always primarily an infection, rather than an infection which follows hyperemia of the nasal tract induced by non-bacterial agents now generally considered as predisposing only.

A variety of divergent views and theories have

been offered for the active treatment of the common cold. But whatever plan is followed clinical experience supports the contention that treatment is largely a matter of nursing care and strict attention to details of hygiene. Assuming this to be true the following several divisions of treatment, seasoned here and there with a plea against overtreatment, are proposed.

Rest in Bed. At the onset of a cold the child should be put in bed and should be required to stay there for 24 hours after the temperature has returned to normal. He should be isolated from other children of the family. Breathing is made easier if the head of the bed is elevated. The temperature of the room should be between 70 and 75 degrees F. Many think the temperature should be kept at 65 degrees F., but children with a simple cold resent being put in bed, and many of them will not lie under the bed covers unless a nurse stands guard duty. Chilling of the body surfaces is less likely to occur at the higher temperature. Humidifiers, or wet towels placed over the radiators, are valuable in maintaining proper moisture in the room. Fresh air should be admitted through a window open from the top.

Daily Bath. For the very sick child with hyperpyrexia a sponge bath is preferable. The sturdy child whose temperature range is between 100 and 102 degrees may be given a full tub bath. The bath water should be about 98 degrees F. A full tub bath given quickly, followed by brisk rubbing with a towel is invigorating and an adjunct to body-surface elimination. Most children feel better after a bath.

Daily Bowel Movement. During a siege of illness physical inactivity and decreased intake of food lessen the urge which provokes normal bowel activity. This is not always the case, however, since not a few children continue to have regular bowel movements throughout a long sickness. A great many authors put forth that a physic should be given at the onset of a cold. Castor oil and calomel have not yet given up the vogue which dates back to, as legal documents proclaim "man's memory runneth not to the contrary." A child should have a bowel evacuation once in 24 hours, but if the patient has had the habit of regular bowel action at the time of onset of illness there is no more indication for giving castor oil, or other physics, to increase

bowel activity than there is in giving, let us say, strychnia to accelerate the heart's action. If the bowels are sluggish a warm cleansing enema or a mild laxative is indicated. If those who deplete a sick little youngster with large doses of castor oil or calomel were to take, themselves, an amount of the same multiplied by the difference in age and weight, the expression "give him a good physic" wouldn't be so popular. Possibly purgatives have a place in the treatment of some disorders, but not here.

Diet.—Nature isn't out of step when she brings about lessened appetite in sick children. With few exceptions it is wise to allow a child with a cold to eat just about what he wants to eat of the normal diet for his age. The pale, undernourished child certainly needs food to replace the tissue waste incident to infection and fever, and such a patient should be urged to take small amounts of highly nourishing food at frequent intervals. Cereals, purees, custards, jellies, honey, maple syrup, fruit juices, toast, rice, milk, and stick candy are all well adapted for this purpose.

Many physicians will not allow milk to the child sick with an upper respiratory infection. The practice of prohibiting milk is becoming so general among pediatricians, as well as among general practitioners, that it warrants a few words of comment. The rationale of diluting the milk formula of bottle-fed babies, and of decreasing the milk intake of older children who have gastro-intestinal symptoms during the course of an upper respiratory infection is therapeutically sane. Milk as an exclusive food predisposes to intestinal trouble because it is an excellent culture medium for the growth of pathogenic bacteria activated by an upper respiratory infection. In infants, and in those older children who have symptoms of enteric disturbance, cow's milk should be skimmed, boiled, and reduced to a minimum, or omitted entirely. In these cases, protein milk, barley gruel, and rice water are excellent substitute foods.

Children, however, who do not have at the onset of illness a gastro-intestinal disturbance may, and should, have milk if they like it. I have allowed milk sparingly to some, freely to others, and not at all to many. As yet I am not convinced that children who are forbidden milk during the course of a common cold recover any

more promptly than those who are allowed milk as a part of their dietary. Nor have I noted any difference in the frequency of intestinal sequelae when the cold was uncomplicated at the onset.

Candy as a food for sick children is not a fancy of mine nor a fad of pediatricists. Pure, clean, stick candy is a wholesome, easily-digested food which is taken readily by sick children even when the sight of other foods produces psychic nausea. You know how often acidosis stalks the child's sick-room, and you know, too, how quickly it vanishes when a little sugar and fruit juice is given the patient.

Local Treatment and Medication.—Many physicians advocate instilling into the nostrils a few drops of one of the silver protein solutions during the course of an upper respiratory infection. The silver salts may be of benefit during the first day or two of a cold, but their value is doubtful after the thin mucus nasal discharge has become mucopurulent. The secret of local treatment lies in keeping the nasal passages free of obstructive secretions. Selection of a method to insure free drainage should be governed by the intelligence and skill of the mother or nurse. Fair results will be obtained by using small cotton applicators to free the nasal openings. Following this the child should be urged to blow his nose gently if he has acquired the knack. Better drainage follows if the nasal mucosa is freed of tenacious secretions by means of suction with a soft-tipped rubber bulb. A more efficient means of keeping the nasal passages open is by the use of the weekly-alkaline nasal douche. Very few mothers, and only the most skillful nurses, should be entrusted to give the nasal douche, since middle ear and accessory nasal sinus infection not uncommonly follow the careless use of this procedure. For this reason the mother or nurse should be instructed to allow only a gentle flow of fluid through a soft-rubber catheter. The child should be placed with his head over the edge of a table, face down, when the nasal douche is given. A medicine-dropperful of liquid albolene instilled into each nostril following the douche soothes the mucosa in a gratifying way. Many rhinologists suggest spraying the nostrils with one of the ephedrine or adrenalin preparations following a nasal douche. This may be especially valuable in those cases of com-

mon cold which are complicated by paranasal sinus involvement. And a good many colds are so complicated.

Fever accompanying nasal colds is usually moderate, although infants and very young children may have a wide range of temperature. I know of no better fever depressant for the child with cold than aspirin. It may be given in a dosage of one grain every three or four hours to the child of one year; two grains to the child of two years; and so on up to five grains, three or four times daily to the child of five years.

Cough is an annoying symptom which too often deprives sick children of much needed rest. The coughing effort in very young children is unproductive and the distress which it causes is physically and mentally depleting. Respiratory sedatives should be given, and of these there are many to choose from. Combined with a sedative it is often beneficial to give atropine which has the property of lessening the secretion of mucus. Children tolerate atropine very well, and the opiates not so well. The vigorous child of two years who takes fluids freely may be given, for example, 1-30 grain codeine sulphate with 1-1000 grain atropine sulphate, in simple syrup, four times daily.

The pharmacological action of the commonly prescribed carbonate and chloride of ammonium warrants the dogmatic statement that they do not belong in cough mixtures given the child with cold. The ammonium salts are irritating to the gastric mucosa and their tendency to produce vomiting and diarrhea too often leads to an exhausting complication of the gastro-intestinal tract. The widespread use of several well-known proprietary salves and imbrocations charged with menthol and other volatile substances, reminds one of the pungent brews our ancient medical forebears prescribed. Doctor John Ruhräh, writing about physicians of ancient and medieval times, and whose entertaining articles appear each month in *The American Journal of Diseases of Children*, will remind us one of these days that the use of these preparations is old stuff, and that we ought to know better.

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PERSONAL HYGIENE AND PUBLIC HEALTH*

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Forty years ago 23.2 per cent of deaths occurring in the City of Chicago were due to infectious diseases. Now only 10.4 per cent are attributable to this cause.

Forty years ago the most frequent causes of death were pneumonia and bronchitis, tuberculosis, and diarrheal diseases, which were responsible respectively for 15, 10 and 12 per cent of all deaths, and together for 37 per cent of the total number. Now heart disease is responsible for 20 per cent, nephritis for 11.5 per cent, and cancer for 9.5 per cent of all fatalities recorded; these three together now causing 41.0 per cent of all deaths.

The average age at death in 1885, in Chicago, was 20 years, 4 months and 26 days, as compared with 44 years, 5 months, and 11 days in 1928. The U. S. Census returns show that in 1900, 10.2 per cent, in 1910, 11.3 per cent, and in 1920, 13.6 per cent of the population was over 50 years of age. It is predicted that the 1930 Census will show 17 per cent of the City's population over 50 years of age, and that this figure will reach 23 in 1940.

This is a situation that deserves attention and careful consideration for it will have a tremendous effect upon the economic conditions and social life in the future. It will present new problems to the health and welfare agencies of communities and will call for an ever greater participation of the medical profession in the conservation of the public health.

Let us not fail to foresee and meet this change in the age distribution that is destined to occur in our future population. When a similar saving in lives of infants was gradually being made during the last twenty years, which resulted in reducing the infant mortality rate from 122.3 in 1910 to 60.0 in 1929, school boards and other agencies charged with the care and education of children failed to foresee the increase in child population that resulted from a 50 per cent reduction of the infant mortality and consequently did not provide the necessary school buildings,

or other facilities for education and care of the increased number of children that lived through the period of infancy.

The task of caring for an ever increasing population over 50 years of age, and keeping this group in a state of maximum attainable health and efficiency, is one that must be met in the near future; even within the next 10 years this problem will be of major importance. This task will be an individual problem, to be solved by each person himself. In this he will require the professional guidance of his physician. The personal hygienic measures necessary to keep this population of elderly persons well must primarily be adapted to each individual, after a periodic physical examination, and be based upon sound medical knowledge. Such service cannot be rendered en masse by health departments or any other agency. It can be rendered efficiently only by physicians who have made repeated examinations and observations of the persons seeking advice and who have the knowledge of the idiosyncrasies and physiologic responses in each individual case.

The problem is therefore quite different from what it was in ridding the community of cholera, malaria, typhoid, dysentery, or even tuberculosis and similar communicable diseases, where governmental action was necessary to stamp out the sources and carriers of infection. The measures found effective in stamping out these diseases, such as the providing of safe water, milk and food supplies, installation of adequate drainage systems, preventing atmospheric pollution with smoke and soot, isolating sources of infection by quarantine and hospitalization, and the finding and isolation of carriers of the disease, were community problems in the handling of which individual rights and opinions had to acquiesce to the interests and demands of the majority. Although these measures were based on medical and engineering knowledge, they could not, except in isolated instances, be applied individually.

The medical profession deserves a great deal of credit for dealing with these community problems in an entirely altruistic manner as is shown by the history of these movements in every community of the country. In Chicago we find eminent members of the medical profession, such as Doctors W. B. Egan, J. C. Goodhue, B. McVickar, Daniel Brainard, N. S. Davis, Hosmer

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A. Johnson and John Rauch, leaders in the movement for sanitary reform and the institution of measures for the control of epidemic diseases. The sanitary history of every city of the state shows the same altruistic leadership of the medical profession in instituting sanitary reforms and improvements.

PERSONAL HYGIENE A NECESSARY FACTOR IN MAINTAINING PUBLIC HEALTH

From the foregoing it is evidenced that personal hygiene must be relied on more and more in the future for maintaining the public health. Time will not permit the discussion of the indications and effect of the various hygienic measures to be followed by individuals for maintaining their health, nor is it the province of the health officer to tell the medical profession what personal hygienic measures they should recommend for their clientele. Personal hygiene must necessarily be largely a personal matter. Some persons may be harmed even by a little drinking, or by smoking or gormandizing—others not at all. The Germans have done a lot of work recently showing that family trait is an important factor in such matters.

It is not the province of the health officer nor of the doctor to take the joy out of life. The people at large will not heed general taboos which seem to interfere with their pursuit of happiness. Individually they will and should listen to their personal medical advisor in such matters.

This paper is concluded by the enumeration of a few general principles which must form the basis of enlisting the practice of personal hygiene in maintaining the public health of the future and briefly suggesting a plan by which health officers and the medical profession can cooperate to extend to the public the full benefits of the available medical knowledge relative to securing the highest degree of personal health and efficiency.

It should be the health department's function to educate the public by pointing out the dire consequences of the neglect of personal health, to show the necessity for changing and adapting the mode of life in persons afflicted with irreparable defects of bodily structure and in this connection, to urge the necessity for periodic medical examinations of all persons, children as well as adults, so that the required corrective

measures can be instituted before permanent impairment of structure and function results.

Even in this educational work the cooperation of the medical profession is necessary, for in the last analysis, individuals will be guided by the advice of their physicians, in undertaking a regimen for the improvement of their health. Therefore there should be a clear understanding between the health officer and medical profession in conducting the huge and never-ending task of educating the public.

The function of the practicing physician divides itself into two main categories, one that of keeping the well individual well, the other that of preventing the progression of certain chronic diseases and obtaining the least impairment of function in persons already afflicted with some irremediable bodily defect; in other words, showing such persons how to live with certain diseases like heart disease, nephritis, arterio-sclerosis and similar disorders.

Although this may be considered a phase of curative medicine it nevertheless will be an important function in maintaining public health in the future, when 20 to 25 per cent of the population is over 50 years of age. The usefulness to society of these aged people must be maintained up to 70 years as far as possible and they must be prevented from becoming a burden upon themselves, their families, or upon the community.

Conclusion: The conclusion from this cursory survey of the relationship of personal hygiene to public health is that there is a very close relationship, but this does not mean that health officials should undertake to make periodic physical examinations of individuals, and prescribe a health promoting regimen for them, but that this work must and will be done by practicing physicians.

Further that the necessity for such work will become of greater and greater importance when, as is now rapidly occurring, a larger and larger part of our population is constituted of persons over 50 years of age, on account of the saving of lives accomplished in early years, by the prevention of infectious diseases, better medical, surgical and obstetrical care, and greatly improved environmental conditions.

Lastly, that it be the function of health agencies to educate the public in regard to the

necessity of availing itself of the knowledge of personal hygiene possessed by the medical profession, so that the increased span of life now thrust upon individuals by sanitary measures on the part of the community may be lived more happily and with the greatest possible benefits to society.

DISCUSSION

Dr. John W. H. Pollard, Evanston: In beginning this discussion I would like to compliment and sincerely compliment Dr. Koehler on his presentation in an exceptionally original manner the necessity of periodic physical examinations. I think he took the right stand when he states that the responsibility for a physical examination is in the hands of the family physician and is not primarily a health department activity.

His reference to the incidence of disease relative to cancer, heart disease, etc., and the important place which these diseases take in the frequency of the cause of death is exceptionally important and interesting as well for the reason that the whole picture of the principal causes of death has gradually been changing in the past 20 or 25 years. Diseases which are due to environmental conditions, like the contagious diseases, etc., were the principal causes of death 50 years ago. They have fallen into the background and now we are beginning to approach a different group of principal causes of death which show the reaction of continued work and activity upon the body. In other words, the body has been given the privilege of coming through the adolescent period and stepping into adult life, and now it is a case of wear of the organs which go to make it up, in an increasing percentage of the cases.

In Evanston I recently became interested in the principal causes of death of twenty-five years ago as compared with those of 1929. Our records are pretty fair from 1908 on. I tabulated the ten principal causes of death then, and then worked through each year including 1929. With one exception, and that was organic heart disease, the causes of death varied and many gradually but consistently dropped lower in the list. I think from 1908 until 1929 inclusive, with the exception of three years, heart disease was the principal cause of death in that city. Tuberculosis dropped from fifth place to eighth place. Cancer rose from fifth place to third place. This, I think, gives you a fair cross-section of the situation which must be faced. From now on it is going to become more and more a problem of conserving the life of the middle-aged, of the individual who has the good fortune to step into the sixties and possibly beyond than it has in the past.

I think that Dr. Koehler has taken an exceptionally interesting and novel stand and has presented it in an exceptionally novel and interesting way.

I regret that I cannot coordinate more fully with Dr. Koehler's topic, as circumstances prevented my receiving a copy of his paper in advance of this meeting. Under the impression that the general topic was to be "Personal Hygiene," it was suggested that I present

for discussion one phase of personal hygiene, viz., "Mental Hygiene." Acting on this suggestion, I have hastily prepared, in the short time available, this little paper on Mental Hygiene of Adolescence.*

Dr. John M. Dodson, Chicago: There are just two things I would like to mention in reference to Dr. Koehler's paper. I think, of course, as we all do, that one of the major and growing functions of all health departments is to direct and stimulate the education of the public, but it is primarily a function of the family doctor—of the doctor himself. Until we have the physicians of the country regarding themselves as an integral part of the health department, as the health officers or advisers of their families, we shall not get as far as we ought to go with this matter. The function of the health official is to stimulate the education of the public, in all feasible ways.

In reference to the discussion about sex hygiene, I was glad to see the emphasis laid on the parent as being the proper functionary. There is a growing tendency among educators to make this a school matter, to put sex education into the hands of some of the teachers. One cannot overlook the shameful and all but universal neglect of this matter on the part of the parents. At the same time I feel it is a serious mistake to turn it over to the teacher. This matter belongs to the parents but it belongs also to the family doctor. It is the business of every family doctor to interrogate the fathers in his clientele as to whether or not they have brought this subject to the attention of their children and to point out to him its extreme importance. If the father feels unequal to the task, the doctor should ask him to bring his son to his office and let them talk it over there together. It is not a matter to be turned over to the schools or educators primarily. One of the encouraging things in this connection is the nationwide movement that is going on now, especially in the parent-teacher's associations represented in the National Congress, to wake up parents to their responsibility in this matter. The two chief things that that Congress is doing at this time are first, to look after the health and physical condition of children in school, especially at the entering period and, secondly, to educate them for parenthood.

*Illinois Medical Journal, February, 1931, page 154.

ABDOMINAL PAIN IN CHILDREN*

JOHN F. CAREY, M. D.

JOLIET, ILL.

Before a group of general practitioners such as make up the greater part of the State Medical Society I feel as though it is some of the more frequent problems which, however trivial, in some cases are the more worthy of our consideration and discussion.

*Read before Illinois State Medical Meeting, Section on Medicine, May 22, 1930.

Thinking back over a ten-year period I can recall no condition more common, no problem more complex than abdominal pain in children. I realize that early diagnosis is essential, especially regarding appendicitis, where there is such a tendency in early childhood to rupture and general peritonitis. Appendicitis is practically the only surgical condition which may be confused; other conditions such as intussusception, etc., have as a rule classic symptoms. The purpose of this paper, then, will be to call attention to some of the conditions in which abdominal cramps occur and to emphasize the great importance of non-surgical disorders.

There is a medical as well as a surgical abdomen the differentiation of which will often avoid needless operation or prevent a case of appendicitis from rupturing with subsequent general peritonitis. To me it is one of the most perplexing problems of differential diagnosis in medicine. We may have a croup with negative culture or a congenital lues with a negative Wassermann or a negative x-ray in osteomyelitis, but none will cause us more alarm than the sick child with pain in the abdomen. These conditions, the diagnosis of which rests upon laboratory findings, makes the more recent graduate appreciate the fact that we must first look upon the old-fashioned methods in our guidance, if we hope to diagnose the case early.

I am perhaps bold to believe that the trained pediatricist has a broader outlook on the significance of abdominal pain in children than the surgeon who is confronted more often with the border line cases of surgical belly, that come to him for differentiation. However, we should never feel too confident.

In one case I recall having seen a child with a good surgeon, with whom I had seen previous cases of acute abdominal pain. After three days of deliberation he removed a gangrenous appendix.

Case of baby, eleven months old, poorly nourished, with a poor feeding history, developed a mild throat infection—temp. 100.5 degrees, frequent bowel movements. The abdomen was somewhat distended. After I had watched this case, which had been referred to me by a surgeon, for three days, we finally decided it was a general peritonitis or that an exploratory laparotomy was indicated. Operation revealed a ruptured appendix and a belly full of pus.

In discussing the medical abdomen from a

pediatric standpoint, we must discuss the different types of pain and conditions which produce them. In infancy one of the most frequent causes is some sort of indigestion. In certain infants there is a nervous instability peculiar to early life. It is not wrong to assume that the bowel shares in this individual peculiarity, so there may be, if I may use the term, a “nervous bowel” which at the slightest stimulus goes into contraction, the same not occurring in a less nervous child.

I have observed several children with pain in the abdomen following the ingestion of raw milk; some may be due to the inability of the infant to tolerate an average amount of fat. The same is found to be true in giving different kinds of sugars which no doubt explains the fact that just a change of the type of sugar frequently relieves the symptoms. Many mothers will state that a change from cane sugar to Mellin's Food gave immediate relief, or vice versa. One has frequently observed that the ingestion of cereals causes pain, particularly wheat cereals. It is not at all uncommon that the use of rice water in preparing a formula, is followed by the disappearance of symptoms which barley water, etc., seems to produce.

There is also the gastro-intestinal type of irritability which is relieved by atropine. Early tetany is relieved by calcium salts.

Case of baby five weeks old, normal delivery. At four weeks of age the baby showed signs of irritability, doubling his legs upon his abdomen, frequent bowel movements, vomiting and very frequent convulsions. The temperature was normal, the reflexes were normal. The convulsions were generalized. A spinal puncture revealed normal fluid under normal pressure. The blood calcium was 5.5 mgms. Calcium lactate in the dosage of 60 grains per day, Viosterol 1, M. V.—B. L. D. together with quartz light therapy raised the blood calcium to 7 mgms. at the last determination and no further symptoms have presented themselves.

Tetany does occur earlier than we are led to believe. I have seen three other cases under five months of age.

There is a class of older children which the physician sees frequently, the mother stating that the child is growing thin, the lower eyelids are puffy, there are dark circles under the eyes, the child sleeps badly, has night terrors, talks in its sleep, and grinds its teeth. The mother as a rule must force the child to eat. He frequently has

not time to eat and is in a hurry to get back to school or to play. The rapid ingestion of food is followed by a severe attack of colicky pain in the abdomen. There is no question that hunger causes pain, as does too rapid ingestion of food. Rest in bed and proper management of the child by a nurse or attendant, on a balanced diet will prove of utmost value.

Constipation I do not believe should be included in the list of probable causes; however, there are a certain number of children who will not take time to go to a toilet, and a resultant impacted mass of feces may cause some pain on defecation or when nature attempts to warn the child. The same may be said of anal fissures or in the congenital small anus.

I have never seen intestinal parasites cause pain; nor in children who have parasites have I ever been able to obtain a history of previous attacks of pain.

The last group of cases which I wish to discuss is that in which abdominal pain is associated with or follows certain parenteral infections. Very frequently the onset of an acute infection is ushered in by colicky pains in the abdomen. A child old enough to designate pain will point to the navel or an inch or so above it. A baby will flex its legs on its abdomen and the abdomen is tense. This is more often present in so-called "intestinal gripe," but it is present at times in pneumonia, scarlet fever, and acute throat infections. It need not necessarily be acute in origin, as chronic respiratory infections are frequently observed as the cause of colicky pain in the abdomen. This is frequently an initial symptom and may appear after the original infection has subsided. In all cases of intermittent abdominal pain one should look most diligently for chronic respiratory infection, as it is so often the clue to hidden infections about the tonsils, adenoids, or sinuses.

The case of Ann P., three and one-half years old. After the onset of a cold and bronchitis, this well-nourished child continued to have a temperature of 100 to 102 degrees. This lasted for eight weeks during which time on at least three occasions we observed the case because of abdominal distress but did not venture operation. A Von Pirquet test and x-rays of her chest were negative. The tonsils were removed and the child has had no temperature to date and no further signs of abdominal distress.

We have all observed laparotomies where the

appendix has been removed which to our minds did not alone account for all the symptoms present, the so-called "catarrhal type." The majority of these cases examined thoroughly before operation show signs of upper respiratory infections. Evans, quoted by Brennemann, states that 86 per cent. of the total cases of appendicitis showed a demonstrable primary upper respiratory infection and appendicitis was much more frequent in epidemics of colds. The most frequent cases or the cases which will cause us more alarm over the associated appendiceal lesion are those in which there has been an enteritis present with throat infection. In light of our present knowledge and experience throat infections should not throw us from the diagnosis of appendicitis, but rather put us on our guard for the closer observation of those cases where there has been a history of frequent bowel movements and occasional vomiting.

Abdominal distension always makes a diagnosis difficult especially where it occurs in toxic cases of pneumonia or acute throat infections. These cases are frequently fatal and after we have lost a case we cannot help wondering if it was just a toxic ileus or if there has not been a peritonitis present also, as I am becoming more convinced that with known foci there must be a great possibility of the spread of this infection whether it be hematogenic or enterogenic in origin.

In children under three or four years of age in whom nausea is difficult to distinguish from real distress, one is often confronted with another problem. In the cases of "hyperemesis heimis," discussed by Zahorsky, or the epidemic acidosis cases so frequently seen during the season of colds there is no flatulency and the pains are not sharp and intermittent and accompany the first symptoms, or even precede them. The abdomen is flat in these cases, not tender, and the child after a vomiting spell will lie at rest exhausted. In the ordinary cases seen with a cold the pains are spasmodic and colicky. The child will cry; however, these youngsters invariably say "their stomach hurts."

As to the cause of these types of pain Brennemann feels that the symptom is due to an expression of the inflammation in the abdominal lymph nodes. This does occur, as one knows

who has observed laparotomies where the only pathology found was swelling and redness of these mesenteric glands.

Beaven feels that because this susceptibility to pain decreases as age increases, it may be due to greater instability of the network of nerve plexuses in the intestinal wall.

Apfel recently stressed the importance of reviewing the nerve supply of the abdomen, especially as regards the acute abdominal condition in early childhood. The lower six intercostal nerves not only supply the pleura, but also the anterior and lateral portions of the abdominal wall with branches of the dorsal spinal nerves and the ilio-hypogastric and ilio-inguinal nerves. The posterior wall of the abdomen is supplied by lumbar and sacral spinal nerves. The lumbar, sacral and intercostal nerves are connected by sympathetic ganglia situated on each side of the spinal cord. The abdominal viscera receive their sensory nerve supply through sympathetic plexuses. These plexuses are connected with the cord centers supplying the abdominal wall.

The abdominal viscera are quite insensitive, but the parietal peritoneum being supplied with spinal nerves is very sensitive. It is generally accepted that the abdominal viscera are insensitive to pain, but are pain conscious when peristalsis becomes excessive or during inflammation when the tissues become engorged and tense, as a result of congestion. This congestion may often occur as a result of inflammation of the lymph nodes and hypertrophy of Peyer's patches with resulting hyper-peristalsis.

I am thoroughly convinced that no one explanation of these types of pain is completely satisfactory. As we said before, abdominal lymphadenopathy does occur and causes pain. One reads, also, of ruptured mesenteric glands, though I have never been fortunate enough to observe them.

The intestinal or abdominal musculature may share also in the general grippy pains observed so often in the seasonal influenza epidemics.

It seems to me that the greater number of cases coming to operation where the appendix does not show enough pathology to account for the symptoms that swollen glands have been more commonly found, and the less severe cases are explained on the basis of referred pain or

myalgia of certain abdominal or perhaps intestinal musculature.

In the majority of children the navel is the landmark to which they will point in all forms of abdominal distress, but more frequently than we give them credit for they will lay their palms obliquely over McBurney's point where there is localized pathology in the appendix.

Having reviewed the mechanism of the pain, it remains then to differentiate between the medical and surgical abdomen; especially in so far as acute appendicitis is concerned.

The white count does not offer a great deal of assistance in differentiating the individual case. All surgeons agree that statistics prove that the white count is elevated in most cases of appendicitis. A surgeon rarely operates without ascertaining the blood count. However, in the isolated case the result of the count does not loom as an important factor. According to Friedman approximately fifty per cent. of the cases have a white count under 10,000 and in eleven per cent, of the perforated cases it is under 10,000. Aldhous laid great stress on the white count and he said that all doubtful cases with a leucocytosis of 15,000 to 30,000 should be explored; as for the differential count, the majority of men deem a polymorpho-nuclear leucocytosis of ninety per cent. indicates immediate operation and with the percentage below eighty watchful expectancy may be followed. There are, however, very toxic cases with extremely low white counts and low polymorpho-nuclear counts where waiting may be fatal.

Localized tenderness and spasm are the only distinctively diagnostic signs. These may be elicited by one who is familiar with handling children; who knows the cry, the reaction to examination, the wince and squirms of pain, and most of all the normal resistance of the abdominal muscles to palpation. A child may say its pain is improved or gone when a doctor arrives, but he cannot hide the localized tenderness and muscular defense when there is pathology present. In the "Medical" type of abdomen the most important factor is the pain which has a tendency to improve while the greatest factor in the alarming surgical cases is the greater tenderness and spasm, the pain being only an initial symptom as a rule. I do appreciate the fact that many times the physician is called late and has not

had sufficient time to observe the case from the onset and also that many errors may be made in the retro-cecal type which may not give localized symptoms.

I do not like the term chronic appendicitis and would rather use the term "recurrent" appendicitis in those cases of pain in the abdomen of localized tenderness which subsides and there being no other signs of pathology such as an acute or chronic respiratory disorder, irregularity of diet, etc., as elicited from the history. I do not believe a surgeon is justified in exploring an abdomen because of intermittent attacks of abdominal pains in which other lesions far more common in early childhood have not been entirely ruled out. If there is a chronic appendicitis, why is it not always present.

Few surgeons will not modify their stand on chronic appendicitis. When questioned they will prefer the term "recurrent." Certainly we cannot speak of the lesion as being chronic in the same sense as chronic sinusitis or chronic osteomyelitis, etc.

In conclusion then, many types of common disorders in diet and hygiene or ordinary colds cause abdominal pain, and appendicitis does occur as a result of or during acute colds especially if enteritis is present.

The etiology is probably multiple inflamed glands or a referred type of pain or myalgia no one explanation of which fits all cases.

The diagnosis rests on localized tenderness which is persistent and with the tendency to be more severe and not upon the fleeting type of pain which is a very common complaint in children.

Chronic appendicitis does not occur in the same sense as chronic bronchitis, sinusitis, etc., but as definitely recurring attacks.

Early and frequent observation without too marked a tendency toward conservatism is essential.

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DISCUSSION

Dr. John R. Vonachen, Peoria: This is a broad subject to cover in twenty minutes, and I think Dr. Carey has very ably passed over the ground. There is probably no class of cases where the surgeon should take into consideration the ability of the internist, particularly the internist who is familiar with children, as in abdominal pain in children. Likewise, there is no class of cases in which observation at the bedside is of more importance. Experience at the bedside with this type of case goes a long way.

It is probably well in making a differential diagnosis of abdominal pain in children to consider the case from the standpoint of extra-peritoneal causes and intra-peritoneal causes. The extra-peritoneal causes divide themselves into those which cause pain in the abdominal wall and those causing pain in the thorax; spinal caries, omental hernia, umbilical hernia and types of acute hip disease are frequently conditions which cause pain in the abdominal wall.

The causes of pain in the thorax are pneumonia and as I had occasion to see in two cases, pericarditis which simulated an acute abdomen in the beginning. I think what is of value particularly from the standpoint of differential diagnosis between pneumonia and acute appendix, is in the majority of cases the leucocyte count. We know in the majority of cases of pneumonia before the chest symptoms develop, the count is high, not uncommonly over 30,000, which is rare in acute appendix. From the standpoint of intraperitoneal causes it would be well to divide these into two classes. Types with sudden onsets and those which are chronic or recurrent. Time will not permit this differentiation.

Dr. George E. Baxter, Chicago: I believe that every case of abdominal pain should be thought of as a potential appendix. If we do that we are not likely to make so many mistakes. If we keep that in mind we will be more careful in making our examinations, and I believe more cases are missed on account of examination not being made. It is a difficult thing to make a differential diagnosis. However, in every case of abdominal pain the important thing is to make sure whether there is an acute peritonitis or appendicitis infection. All during the course and subsequent to the course of colds, grippe, or upper respiratory tract infection there is always the possibility of involvement of the appendix. One word about the leucocyte count; I am strongly of the opinion that you should never make a diagnosis by the leucocyte count alone. It is of assistance in making your diagnosis, but that is all. We cannot differentiate pneumonia or appendicitis by the number of white cells present. Dr. Vonachen mentioned the fact that he gives great attention to the bedside examination. That should be emphasized. It is one of the most important factors in handling patients of this type.

Dr. A. H. Burr, Evanston: I think the point the essayist emphasized with regard to the relationship of tonsillitis to the appendix, and differentiating between them, with the symptoms that may arise from the tonsils and those which may arise in the appendix, is

most excellent. The tonsils play a large part in such conditions as enterocolitis with abdominal pain and bloody stools. The infected tonsil is very often the source of infection which brings about an acute condition of the appendix. I add that to the complications Dr. Carey mentioned.

Dr. John F. Carey, Joliet (closing): I was pleased to hear all the men agree that complete physical examination as well as closer cooperation between the internist and the surgeon are essential. The etiology of the pain produced by lumbar caries and the pathology in the chest is generally thought to be a referred type. Herniations of all types must be considered, especially those types which produce a tension on the peritoneum. I have often wondered, but generally disregard pain produced in umbilical hernia.

With regard to Dr. Arnold's suggestion of the structure of the appendix: The German writers, especially, speak of the appendix as the appendiceal tonsil. The similarity of structure of the tonsils and appendix would theoretically lead one to assume that bacteria that invade the tonsils would also find a receptive field in the lymphoid tissue of the appendix.

HISTOPATHOLOGY OF HOLES AT THE MACULA*

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CHICAGO.

While numerous clinical cases of holes at the macula have been reported since the first accurate description by Haab¹ and Kuhnt in 1900, histopathologic studies of this condition have been very few. Indeed, the writer in a fairly thorough though by no means complete review of the literature, has been able to find only twelve such instances; hence the report of the following additional case is amply justified.

L. K., female, aged 52 years, came to the eye clinic of the University of Illinois October 13, 1927, complaining of severe pain in the left eye which had been injured by a butcher knife when she was 3 years old, resulting in total blindness. The eye was inflamed for 6 months following the injury but finally quieted down and remained so until 7 years previous to admission. At that time it became extremely red and painful; the pain radiated to the left side of the face and scalp. Since then she has had similar attacks every winter, the present one being the severest and of several weeks' duration.

Examination revealed edema of the left upper lid, narrowing of the palpebral fissure, marked photophobia

and lachrimation and considerable mixed injection. The cornea was steamy and ectatic and presented a 1.5 mm. wide grey crescentic scar, beginning 2 mm. from 1 o'clock and ending at 6 o'clock limbus. The iris appeared dull and was incarcerated in the lower part of the corneal wound, causing the pupil to be horizontally oval. The fundus reflex was absent, TT. ++, and there was no perception of light. The right eye was normal in every respect and the R. V. with +1.00 sphere=1.0+3; Schiötz tonometer R. 17.5, L. 59.5. The diagnosis was perforating wound, iridocyclitis, and secondary glaucoma.

Medicinal treatment failed to relieve the pain and enucleation was advised and consented to. Removal of the superior callote after proper fixation revealed a glaucomatous cupping of the disc and a 1 P. D. punched out round defect in the macular region. Forty serial sections were then prepared and studied in detail, especially the retina which showed extensive cystoid degeneration, numerous hemorrhages in the intergranular layer and a complete hole, 2 mm. in diameter in the macular region. In some sections the edges of the retinal gap were rounded off so that the layer of rods and cones was curled to one-half of the retinal thickness, while the external limiting membrane and the external granular layer were rolled all the way up to meet the ganglion cell layer. Other sections showed the nasal border to be free as above, while the temporal border fused with the choroid, a short distance away from the hole. There the outer nuclear layer ran into the choroid through the broken lamina basalis choroidea and there was migration of pigment into the plexiform layer. In the macular region, however, the choroid and pigment epithelium revealed no pathology. (Fig. 1.)

In addition to the above we found a low grade iridocyclitis, atrophy of the iris and ciliary body, incarceration of the iris in the corneal wound, traumatic cataract, and glaucomatous cupping of the disc. (Fig. 2.)

This case is unique in two respects: 1. Because it is the only one on record in which such a long time elapsed between the injury and the enucleation, namely 48 years; the longest case previously recorded is that by Coats,² 43 years after injury. 2. Because it is the second case on record in which the hole was complete, the only other one found in the literature is a case of retinal detachment due to sarcoma of the choroid, reported by E. Fuchs³ in 1918. In the other eleven cases referred to above the hole was incomplete and usually found in the intergranular layers, the internal and external limiting membranes being visible. In V. Hippel's⁴ case the outer granular layer was absent and the limitans interna was raised by the inner granular layer. In J. Murakami's⁵ case, the defect was partial in the macula, but almost complete in the foveal region, as it communicated with the

*Read before Section on Eye, Ear, Nose and Throat, Illinois State Medical Meeting, May 20, 1930.

1. From the Department of Ophthalmology, the University of Illinois College of Medicine.

vitreous. However, even there, the limitans interna was present and grew over the hole.

It would not be amiss to review the ophthalmoscopic picture in this condition, although it is well known to the average ophthalmologist. It consists of a $1/3$ to $1/2$ P. D. sharply circum-

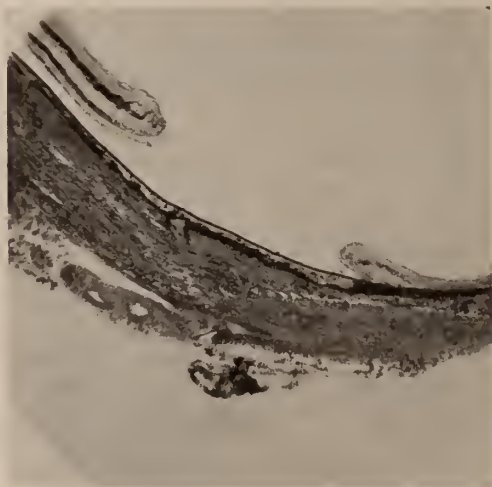


Fig. 1.

Complete Hole in Macular Region. All Layers Except Pigment Epithelium Have Disappeared.

scribed usually circular dark red area in the macular region. It may be stippled, presenting yellowish spots in the center. The surrounding retina is edematous. According to Vogt⁶ the hole at the macula can best be diagnosed with red free light, as with ordinary light a good many cases are either missed altogether or else cystic degeneration and a condition described by him as honeycombed macula are diagnosed as holes.

As to the etiology Fuchs⁷ enumerates the following factors:

1. Spontaneous inflammations of the eye, such as iridocyclitis, choroiditis, and albuminuric retinitis.

2. Contusion of the eyeball, the most frequent cause.

3. Disturbances of the retinal nutrition as in arteriosclerosis, retinitis pigmentosa, amaurotic family idiocy and exposure of the eye to x-rays.

4. Retinal detachment.

5. Perforation of the eye ball.

6. Unknown cause as senility.

Alt⁸ adds another cause:

7. Intraocular tumors.

and Vogt⁶ adds

8. Occlusion of central retinal vein.

9. Luetic neuroretinitis.

10. Idiocy and feeble-mindedness.

Haab obtained a history of trauma in nine out of twelve, and Reis in three out of four cases.

Vogt⁶ offers the following differential points between the traumatic and so-called metacystic (one following cystoid degeneration) types:

1. History.

2. The presence of yellow shreds in the bottom of the hole in the latter and its absence in the former; though one may occasionally find some residue of yellow coloring in the neighborhood of the hole.

3. Honeycomb arrangement in the vicinity of the hole in the metacystic type, absent in the traumatic.

4. The metacystic holes tend to get smaller after a time, the traumatic remain constant for decades.

5. In the traumatic type the choroid and pigment epithelium are uninvolved; not so in the metacystic type.

Our case is evidently of traumatic origin if the



Fig. 2.

Old Iridocyclitis, Cystic Degeneration of Retina, Secondary Glaucoma.

differential points enumerated above are taken as a criterion.

Regarding the pathogenesis, Fuchs¹⁰ believes that the disease of the anterior segment is transmitted to the retina by way of the vitreous and that a mild inflammation may lead to edema and

exudation in the macular region on account of its delicate structure and vulnerability. The primary condition then is an edema, followed by absorption and cavitation. Reis⁹ thinks the edema of the macular region is due to imbibition and transudation from the choroid on account of paralysis of its vessels. Ogilvie¹¹ maintains that the hole is due to counter coup concussion, his explanation being that the waves of disturbance traveling through the fluids of the eye meet at the posterior pole and affect the macula. Birch-Hersfield¹² agrees with Fuchs that it is an exudative process in connection with the changes in the blood vessels and finds support to this contention in the fact that the seat of the trouble is usually found in the inner granular layer where the capillary system is well developed. Most authorities seem to agree that it is a primary edema and secondary cavitation.

In conclusion, I am indebted to Dr. E. V. L. Brown of Chicago for his kind assistance in interpreting some of the peculiar pathologic findings in this case.

55 E. Washington St.

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DISCUSSION

Dr. R. C. Gamble, Chicago: Dr. Folk is to be congratulated upon his good fortune in obtaining this interesting eye for microscopic study and deserves the thanks of this section for the thorough manner in which he has presented the subject.

In reading the clinical records of patients with macular hole one is surprised to find that there is a great variation in the visual acuity of the affected eyes and a great variation in the completeness of the central scotoma; in fact, cases have been reported with 20/30 vision and no demonstrable central scotoma. Offhand, this would seem to be impossible. Dr. Folk has explained this quite satisfactorily by showing that in most cases more or less of the visual elements are present in the hole, enough perhaps to allow some degree of vision in that area. This is exactly the state of affairs to be expected if we realize that a macular hole usually

develops from cystic formation rather than from a direct rupture at the time of the blow. These macular cysts have walls composed, of course, of retinal tissue, and even if the wall ruptures some of it will remain and there may be some function.

In the traumatic cases the course of events is thought to be as follows: First a reflex contraction of the arterioles and capillaries at the posterior pole of the eye due to the sudden transmission of force by contre-coup. This is followed by relaxation of the vessels which may permit transudation of fluid, especially in the inner granular layer. If this is extensive there results the typical picture of commotio retinae described by Berlin. If localized and small, cystic areas may develop in the macula and give rise to hole formation. The non-traumatic cases may arise by the effect of toxins of various sorts upon the vessels and produce the same result.

Most authorities state dogmatically that the hole never arises as a direct rupture at the time of injury. In Parson's Pathology of the Eye, the statement is made that no one ever saw a hole in less than sixty hours after the injury. During the past year I saw a man in whom a hole with fresh blood in and about it was seen within less than twenty-four hours after a definite injury to the eye. Of course, he may have had another blow upon the eye a few days previously, but he stated definitely that he had not. This, by the way, was an industrial case and it was much to his advantage to have had only one injury. It shows too how some of these more or less not practical subjects may suddenly become very practical, because this point of time duration was brought up in court.

Dr. Folk's slides illustrate another possible factor in the production of this condition. In some of the sections a short distance from the hole there is a place where the retina and choroid are fused together by connective tissue, the result of a previous inflammatory focus. The contraction of this connective tissue in the healing process may have caused traction upon the retina, which being naturally thin and probably cystic, at the macula, caused it to give way at this point, producing the hole.

(Slide.) I may be about to make a criticism and I want you all to understand that you cannot definitely decide some things on the lantern slide picture, not as well as you can on a section itself. It looks to me as though this is not actually a complete hole, because I think this single layer of pigment cells represents the layer of pigment epithelium of the retina so that we have only an absence of the inner nine layers. We still have left the epithelium which, histologically, should be regarded as retinal tissue, although we have a complete hole of the rest of the retina. This man was blind. This is the area to which I referred where there has been an inflammatory focus with connective tissue. The pigment epithelium of the retina is not present showing that some inflammation has extended through from the choroid to the retina.

Dr. O. B. Nugent, Chicago: The slide shows distinctly the pigmented epithelial layer of the retina; there-

fore, I would not consider this a complete hole. Further, the close adhesion of the choroid at the point where Dr. Gamble indicated as being an inflammatory process, appears to me as being a condition of an old hemorrhage at that point and the adherence of the retina having been affected after the absorption of the hemorrhagic process.

Dr. Leo Mayer, Chicago: I want to cite a case I saw of carbon monoxide poisoning. There was a hemorrhage in the macular area. The patient was told she had a very good chance of regaining perfectly normal vision. Much to our surprise, after about six weeks' time, the hemorrhage cleared up entirely, but it left a hole in the macula.

Dr. M. L. Folk (closing): I want to thank the gentlemen for their kind discussion.

Concerning the question raised by Dr. Gamble about this being an incomplete hole, I admit the pigment epithelium was present, but anatomically we consider it a part of the choroid; consequently, if all the layers are gone, although the pigment epithelium is left, we should consider it a complete hole. I think this answers that point.

In regard to the proliferation of connective tissue between the choroid and the retina, I do not think the hole was due to that. If you remember the points Vogt brought out in his differential diagnosis, this hole must be due to trauma. Vogt says if it is due to a metacystic condition, the hole disappears in due course of time. This hole existed for forty-seven years. The fact that it is a complete hole also would speak for a traumatic affair rather than a metacystic, for in metacystic hole we usually find the granular layers present.

A CASE OF BONE FORMATION IN THE CHOROID*

S. J. MEYER, M. D.
CHICAGO

Fuchs found reticular thickenings of the supra-choroid with membrane formation quite frequently in cases of atrophic eyes following severe traumatic inflammation. Besides definite, sharply demarcated membranes, he observed other changes, which indicated that mild, but long continued inflammation had been present, for example, after serous effusion of choroidal hemorrhage.

In all these callous formations the deposit of calcium salts may occur, and in most instances, also, the formation of bone. The latter also occurs in the choroid, lens, less often in the ciliary body and the posterior chamber and occasionally in the iris, as reported by Rollet.

The following case report is of especial inter-

est in view of the fact that a presumable diagnosis of bone formation was made before enucleation of the eye in question:

In July, 1929, Miss Emma K., age 56, was first seen on account of a troublesome photophobia. She stated that fifteen years previously she had suffered from a retinal detachment in the right eye, which in spite of local treatment at that time, went on to complete blindness. The right eye upon examination revealed a marked enophthalmus without any appreciable decrease in size of the eyeball. The eye deviated about 20 degrees outward. There was no light perception. It was pale, but became slightly injected upon slight manipulation. There were several irregular, moderately sized, maculae on the cornea. The anterior chamber was entirely empty. The iris was darker brown than the left, atrophic, with nearly complete posterior synechia. The lens was completely opaque and calcified. No fundus reflex was present. The tension was plus three. Palpation of the eyeball gave a sensation of calcification.

The left eye revealed a moderate catarrhal conjunctivitis, which probably accounted for the patient's complaint of photophobia. The cornea and anterior chamber were normal. Retinoscopy under euphthalmic mydriasis revealed a myopia of -11.00 diopters, the correction of which improved the vision to 0.5. The tension was normal on palpation. The lens revealed incipient opacities. The vitreous was somewhat distorted. The fundus revealed a second degree conus and some myopic stretching involving the papillo-macular bundle.

The eye was enucleated under general anesthesia on the day following the first examination. X-ray pictures were immediately made of the enucleated eyeball, which revealed an almost complete ring-like opacity of calcification in the inner coat of the eye, and a marked calcification of the lens itself.

Unfortunately, the eye was not embedded in celloidin and then sectioned serially, but paraffin sections were made, and only certain parts sectioned.

The gross pathological picture presented a cornea which is dull and contains a few grayish-white maculae. The anterior chamber contained a small amount of clotted blood. The lens is apparently completely calcified. The iris is of

*Read before Section on Eye, Ear, Nose and Throat, Illinois State Medical Meeting, May 20, 1930.

firm consistency. The corpus vitreum similarly seems calcified.

Microscopic examination revealed a marked formation of new connective tissue which is most pronounced in the sclera and choroid and extends upward to the ciliary body. This newly formed connective tissue is richly infiltrated with lymphocytes and endothelial cells in some areas, in other areas it is very poor in nuclei and hyalinized. The lens and corpus vitreum reveal a markedly hyalinized connective tissue. In addition to these changes, the choroid and sclera reveal a large amount of new formation of bone structures with many Haversian canaliculi. Some areas show the bone formation replacing the corpus vitreum.

The bone formation develops according to the type of connective tissue ossification, without a previous cartilage phase. According to Pagensteher, the young connective tissue cells on the margin of the connective tissue appearing in the calcified trabeculae play the role of osteoblasts, the bone grows by apposition. On the other hand, Poscharissky believes that the bone formation in the eyes (also in tumors of the stomach and the dura) develops in such a way that small calcified foci show a tendency to bone formation, that the bone then further develops until the entire surrounding area is involved. This author states that the following three factors are necessary to produce bone formation in any organ, viz:

1. Necrosis, or at least, marked calcium incrustation of the accompanying sclerosis.
2. Progressive drying up of the calcified masses, similar to amyloid formation.
3. Inclusion of the vascular containing granulation tissue in the region of the focus.

The structure of the bone may vary considerably. One may find single foci of compact bone substance or many trabeculae, which are formed in layers one over another, and are attached to one another by the formation of small bridges, or there may be larger masses, often with surrounding concentric layers and vessels. Lastly, there may be typical spongy bone substance with hollow spaces, which may be filled with vessels and adipose tissue.

The bone formation can be so marked that the larger part of the atrophic eyeball can be occupied by same, so that by an extenteration

an almost complete bony wall can be removed, which has only posteriorly a small hole where the optic nerve enters, and a large hole anteriorly which may be partially closed by incomplete and irregular bridges. Microscopic examination of such a bony capsule reveals retinal rests, a usually calcified lens, an increase in the ciliary pigment epithelium, and often numerous large cyst formations in the choroid.

Isolated cases have been reported in which small areas of hyalin cartilage have been found in chronic uveitis. Sgrosso reported such a finding in a case of cyclitic thickening and new-formed epichoroidal connective tissue in a markedly atrophic eyeball. Pes reported a case in a man 78 years old, in which an eye had been traumatized thirty-eight years previously (the eyeball was somewhat atrophic, an adherent leucoma was present accompanied by an aphakia and a retinal detachment). There was found a hyaline cartilage-like plate between the macula and papilla, proceeding temporarily from the latter. It appeared as a homogeneous substance, in the disseminated widely separated cells. In the peripheral part the "cartilage" is penetrated with fine blood vessels, which contain pigmented walls. He believed the starting point was the inflamed newly formed connective tissue in the deeper choroidal layers. There was no sign of calcification or bone formation. Michel reported a case as a "fibrochondroma" in which there was a stratification of the hyaline membrane or membrane of Bruch in the posterior pole in a 68-year-old woman (chronic uveitis with chorio-retinitis peripherica and precipitates). The choroidal stroma was free from inflammatory signs, on the vitreous was a fibrous tissue with round cells, connective tissue cells, pigment cells and cartilage cells.

Other cases of hyaline cartilage in detached and connective tissue degenerated retinae have been reported by Moaruro in an atrophic eyeball, by Seeligsohn in hydrophthalmus (chronic uveitis), especially, however, in malformed eyes (micro-phthalmus and anophthalmus congenitus) in the vitreous or in the embryonic connective tissue posterior to the lens.

The chief points to be noted about formation of bone in the choroid are:

- (a) That as a rule it develops from the fibrous tissue, which in cases of plastic choroiditis re-

places the chorio-capillaris layer of the choroid, or in the fibrous tissue that has been formed on its inner side and has destroyed the lamina vitrea.

(b) It usually starts near the disc and may form a plaque in which there is a hole for the optic nerve fibers to pass through. Possibly the entrance of the short ciliary arteries into the eye in this region does have some connection with the increased exudation. Anteriorly it is usually limited by the ora serrata.

The bone may, however, be found in other parts of the choroid, in the retina, in the cyclitic membranes, in the lens, or replacing the vitreous. The larger bony areas show the structure of long bones with Haversian systems and, in rare cases, a true medulla of vascular adipose tissue.

(c) The bone is of the periosteal type. The osteoblasts appear either to originate from embryonic cells with a tendency to bone formation which persist in the choroid from fetal life, and are stimulated into growth by the long continued inflammation, forming first fibrous tissue and the bone. Or they may arise from connective tissue corpuscles which are converted into real bone corpuscles. This latter view seems more likely, for the cells of the fibrous tissue frequently are seen to take on an angular shape, and as they become more deeply embedded in the young ossified tissue are evidently converted into true bone corpuscles.

(d) It usually takes several years for bone to form in the choroid.

58 E. Washington St.

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DISCUSSION

Dr. T. D. Allen, Chicago: Mr. Chairman, it is very profitable for us to listen to the pathological reports. They are to us what the necropsy is to the surgeon or general practitioner. They should stimulate us by advising us of our mistakes and of our correct diagnoses.

Unfortunately, there is a time element present in our specialty, caused by the necessity of preparing the specimens; during the preparation little can be learned. This lapse of time often causes us to lose interest.

We have been fortunate in having Dr. Meyer bring this interesting report to us and reawaken in us that

desire we all have to be scientific. As knowledge of anatomy is the foundation, so knowledge of pathology is the framework on which we should build our practice. Too little, I fear, do we think in terms of pathology.

The finding of bone in pathological specimens is not at all unusual. The position and amount of bone have at times a clinical interest. Usually it is found in markedly shrunken globes and then in the posterior portion of the globe. Occasionally, however, it may occur in an eye of normal size, with plus tension.

Ernst Fuchs reports in *Albrecht von Graefe's Archiv fuer Ophthalmologie*, Vol. 68, p. 560, such a case. In brief, the history and findings were: Patient acquired a cataract in his first year of life. It was operated on at the age of 14 years. Twenty years later the eye was enucleated on account of pain. There was iris bombé and through the iris a yellow mass shone which was thought to be the lens. T. = +1. V. nil.

The iris was found very thin and atrophic; its periphery was applied to the cornea. Normal ciliary body. The anterior part of the eye was separated from the posterior by a thick membrane containing a scanty remnant of the retina and a neoplasm from the unpigmented epithelium of the flat part of the ciliary body. Immediately behind this was a thick bowl-shaped bony mass which lay upon the choroid and was apparently formed in an inflammatory exudate. The bone extended forward to the ciliary body, but it did not interfere with the function of the ciliary body, as the eye did not shrink, iris bombé was presented and the tension was above normal. The yellow mass was not lens but detached and degenerated retina. In this case the bony plate might have simulated increased tension.

We should have more pathological reports. Next to anatomy, pathology is the most important division of ophthalmology.

Dr. M. L. Folk, Chicago: I have enjoyed this paper very much. I believe there is only one thing that has not been emphasized sufficiently, although mentioned in a passing way, and that is the reason bone formation takes place in the choroid is because of its great vascularity. We know that bone formation is one of the last stages of degeneration. If the structure is not highly vascular we get calcareous degeneration, but if the structure is highly vascularized we get bone formation. That is the reason the choroid is usually the seat of bone formation in these eyes.

Dr. O. B. Nugent, Chicago: I recently sectioned an eye which had an almost complete bony involvement of choroid. This bone formation involved the ciliary processes and formed an almost complete ring around the ciliary body. Serial sections show most of the choroid to be involved and the bone formation is mostly in or near the chorio-capillaris layer.

This eye is exceedingly interesting because of the massive bone formation in the ciliary processes, as in most cases the bone formation is confined more to the choroid.

Dr. W. H. Wilder, Chicago: I think there is a practical aspect to this question and that is that you

will quite frequently find bone formations in the choroid in eyes which have been filled with exudate from previous inflammations. It is a good plan to test the tension of such eyes to see if it is increased.

I recall several such cases in which by palpation I was able to determine that there was something in the eyeball which was unusually hard and after enucleation bone formation was found in the choroid. Eyes that have developed bone in the choroid are apt to become irritable and possibly they may be exciters of sympathetic ophthalmia in the fellow eye. So it is well to consider this point in observation of old and shrunken eyes. They are not always very much shrunken, either, as Dr. Allen or someone has said, but they may be fairly good size and you should palpate them occasionally to see whether they feel unusually hard. If you have reason to suspect that there is ossification in the choroid, it is well to excise such an eye which may be a menace as well as being completely blind.

Dr. S. J. Meyer, Chicago (closing): There is not much to add to the discussion, except that I should like to say it is quite valuable to study your eyes histologically once you have them enucleated. The general pathologist at the hospital received this eye by mistake and sections were made before we knew anything about it, and the sections were poor. They should be sectioned in laboratories that confine themselves to eyes. You get better results, you can study them and you can learn more from your cases in that way.

THE SOLITARY CHOANAL POLYPUS*

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The occurrence of a solitary choanal polypus commands interest not alone from its size, location, and relative infrequency but from its etiology and pathologic standpoint. Since the monumental work of Zuckerkandl on the normal and pathologic anatomy of the nasal sinuses the origin and mode of development of polypoid growths have caused much controversy.

Billroth in 1855 was the first to present the theory that the nasal polyp was nothing more than the normal mucous membrane of the nose which when stimulated by some irritant or trauma becomes edematous. He showed that the nasal polyp has the normal histologic structure of the nasal mucosa such as columnar epithelium, basal membrane, connective tissue framework and mucous glands. Zuckerkandl in 1892 first demonstrated that the mucosa of the middle

and superior meati of the nose was very thin about the ostia of the accessory cavities and that the underlying connective tissue stroma was exceedingly delicate and loose. He contended that this form of membrane reacts readily to any trauma or irritation with a resultant edema and increase in volume.

The present classification of soft nasal tumors is chiefly based on the work of Zuckerkandl and Hajek. Both found that polyps and catarrhal inflammation of the antrum are identical processes. Hajek, moreover, pointed out that the loose areolar tissue of the mucoperiosteal layer of the normal accessory sinuses is in close connection with the hollow narrow spaces of the underlying bone and confirmed the findings of Cholewa, Woakes, and Cordes, that in certain cases the inflammatory process may extend from the surface to the periosteum and enter the open medullary spaces of the bone, producing a subacute osteomyelitis. Citelli, Robertson and A. O. Freedman recently presented specimens to prove that the nasal polyp is a gross ocular manifestation of an underlying chronic osteomyelitis or at least a periostitis of one or more of the accessory sinuses of the nose.

In 1905 Killian made the conjecture that a large number of choanal polypi came from the maxillary sinus by a thin pedicle. He assumed that the intra-maxillary polyp stem was dilated by cystic fluid and only on extraction collapsed to a thin stem by bursting of the cyst. He never opened an antrum in these cases. Brown-Kelly advocated that the choanal polyps were due to a cyst of the mucous membrane of the antrum first filling the whole cavity and then protruding through an accessory ostium. Uffenorde published a similar view. Grunwald and Hajek had previously noticed that during antrum irrigations polyps became expressed into the nose and these Killian believed were the initial stages of choanal polypi.

Ino Kubo in 1913 was the first to report the results of operative procedures on the antrum in cases of choanal polypi. He operated in 36 cases and found 27 cases originated in the maxillary sinus, 3 in the sphenoid sinus and 6 were of uncertain origin. He stated that they may occur on both sides simultaneously and that they sometimes recur. He agreed with Killian's idea that the formation of choanal polyps was promoted

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by sneezing. In 48 radical antrum operations performed by Mithoefer for removal of hyperplasias not associated with suppuration, solitary nasal and retranasal polypi were present 6 times and in every case the pedicle of the polyp had its origin within the antrum cavity. Hirsch opened the antrum in many cases of polypi and always found a high grade edema of the sinus mucosa. After the complete removal of the polyps all edematous swelling in the middle meatus disappeared, thus indicating that the origin of the polyps is not in the meatus but in the catarrhally involved antrum. Hirsch made a careful study of choanal polypi and concluded their mode of development as follows: The lumen of the antrum becomes filled by a well-marked edematous swelling of the mucosa which from pressure becomes incarcerated in the maxillary or accessory ostium. The peripheral part forms large choanal polyps as result of passive congestion and inflammation while the pedicle develops with cessation of the inflammation and shrinking of the mucous membrane of the antrum back to the bone wall. The thin strand comes from traction on the incarcerated tip. The section of mucosa on the floor of the antrum wherein lies the stalk of the choanal polyp cannot completely shrink and thus remains in a chronic and edematous state of inflammation.

With the discovery by Hopmann that the fluid in polyps contains largely albumin and not mucus, the choanal polyps are not true myxomas but fibromyxomas, inasmuch as the body of the tumor is made up of a network of fibrous tissue.

In a series of 878 cases of antral disease observed over a period of five years Syme found 26 cases or 3 per cent. of choanal polypi including cases of choanal polypi on both sides. Baum described in detail the gross and histological findings in two cases of large naso-pharyngeal polypi originating in the maxillary sinus which he operated on. In each case the antrum was filled by a cystic polyp and the attachment was on the nasal wall of the antrum just inside the ostium. Variable degrees of inflammation were discernible in the mucosa microscopically. Columnar epithelium changed to stratified squamous.

Syme reported two cases of antrochoanal polypi, one in a girl of 12 years, and exhibited a specimen of a sphenchoanal polypus the pedicle

of which was traced to just on the inner side of edge of the sphenoidal ostium. Douglas Guthrie found choanal polypi in two children, a boy of 9 and a girl of 12. Banks Davis in 1908 showed a specimen of large pedunculated nasopharyngeal polypus from a boy of 9 and one from a boy of 8 years. James Donelan removed a large polypus with two pedicles from a man of 24.



Fig. 1

Lipiodol injected into the maxillary sinuses. The right antrum shows a filling defect near the nasal wall.

One pedicle appeared to come from the hiatus and the other posteriorly from an accessory ostium. Shiodasani writes of a Mohammedan male 45 years from whom a solitary choanal polyp weighing 8 oz. was removed under chloroform. The right side of the nose was considerably distended into almost globular shape; the right nasal cavity was completely obliterated and hanging behind the soft palate and uvula was a large rounded tumor. He sought relief only when he developed difficulty in swallowing and breathing. Dawson reports the removal of an antrochoanal polyp, weight $9\frac{1}{2}$ drachms which filled the entire pharynx in a man 47 years who was content to endure its presence for years. He traced the pedicle lying underneath the middle

turbinate and on opening the canine fossa found polypoid degeneration of the lining membrane and the stalk close to the orifice of the cavity. Three sphenoidal cases were reported by Moure and Massee of Bordeaux and one by Irwin Moore of London. Jabson Horne reported a case of a large antrochoanal polypus but he did not open the antrum. Recently J. E. Lebensohn of Chicago told the writer of a young woman patient who came to his office with a history that she had a little bleeding from the throat and felt something slip down her throat which she spat

bring to light the presence of this type of polypus.

The diagnosis of a solitary choanal polypus offers no difficulty if a careful examination by posterior rhinoscopy and palpation is made. Angiofibroma and papilloma which occur in the nasopharynx, arise from the pharyngeal wall and are firmly attached to it. The polyp has a characteristic consistency and appearance and is freely movable in the nasopharynx.

The treatment is surgical. If the pedicle can be seen in the nose then the severing of it with



Fig. 2

Full size of choanal polypus removed through the mouth. Loose polypoid tissue attached to a flat thin pedicle removed through the nose not shown.

out and showed him a large choanal polypus. A few weeks ago Edwin Blonder brought to the writer a specimen of a large solitary choanal polypus which he had removed from a young woman whose chief complaint was nasal twang of the voice. The last two cases cited found such relief after removal of the tumors that they refused to have anything further done.

The development of the solitary choanal polyp is so slow and gradual that no noteworthy symptoms arise until its size produces marked obstruction in the nasopharynx. Continued unilateral nasal stuffiness and nasal twang to the voice forces the patient to seek relief. Occasionally, hemorrhage, as in the writer's case, or the sensation of a lump in the throat on swallowing,

Van Struychen scissors will permit the polyp to be removed en masse through the mouth. The cold snare, blunt hook or Luc's forceps may be used. Snaring off the polyp will not cure the condition. It will ease the nasal breathing for a while but the polyp will recur because of the underlying condition. Therefore, a radical antrum operation is essential for a complete cure.

REPORT OF A CASE

Mr. A. C., aged 34 years, a salesman, consulted me, July 8, 1928, on account of stuffiness of the right side of the nose with frequent nose colds of many years duration. Examination revealed a marked deflection of the septum almost completely occluding the right nasal chamber. The right middle turbinate was compressed so that it could not be visualized. Transillumination gave a slight cloudiness of both antra and ethmoidal regions. A submucous resection of the septum was

advised and performed a week later. There was an uneventful postoperative course. The right middle turbinate was now seen to be flattened and had a glossy appearance suggesting an early polypoid degeneration; no polypi present. Good ventilation was now established in the right nasal half. He was not seen again until the morning of Dec. 30, 1929, when he reported at the hospital on account of bleeding from the throat and right side of the nose. He stated that he noticed a nasal twang to his voice and stuffiness of the nose but no particular distress until last evening when bleeding began from the nose and throat and continued intermittently during the night. Anterior rhinoscopy indicated obstructive breathing postnasally on the right side. On looking into the throat a mass was seen dangling below the level of the soft palate. Postnasal rhinoscopy showed the pharynx filled with a large tumor. On palpation the mass was soft, movable and not fixed to the pharyngeal wall. With traction on the mass postnasally no pedicle could be outlined by anterior rhinoscopy. The tumor was removed en masse with a cold snare through the mouth. The right posterior meatus was then found occluded by loose polypoid tissue attached to a flat thin pedicle which was traced underneath the middle turbinate to the right maxillary sinus. This section was removed with forceps and Van Struycen scissors, and sent to the laboratory for examination. The tumor was a typical fibromyxoma. Its length was 5 cms., width 1.6 cms., and weighed total 8.9 gms. The patient experienced relief in the nasal breathing. He was requested to report for study of the sinuses. He was not seen again until March 20, three months later. There were no polypi present in the nose. With transillumination the right antrum was dark and the left cloudy. Both inferior meati were cocanized and carefully swabbed with 10 percent. mercurochrome solution. With a Luer syringe 10 c. c. of normal salt solution was injected into each antrum and withdrawn by suction and the contents sent to the laboratory for a bacteriologic and cytologic examination. Both antra were next irrigated and 6 c. c. of lipiodol mixed with equal parts olive oil was slowly injected into each. Then after shrinking the nose posteriorly the sphenoid and posterior ethmoids were injected with lipiodol according to the Proetz technic and roentgenograms taken. The right antrum showed a definite filling defect suggesting polypoid growth near the nasal wall. The antral mucosa was not markedly thickened. The left antrum was negative. The posterior group of cells showed no definite findings. The laboratory report was as follows: Fluid from the right antrum contained staphylococci and pneumococci in smear and culture, also small lymphocytes and polymorphonuclear leucocytes indicating a subacute inflammatory condition of the sinus. That from the left antrum showed no bacteria on smear but staphylococci in culture, and few red cells as cellular content. The patient was advised to have a radical operation on the right antrum and has agreed to submit to such during his vacation period in July. From the study of the data in this case it appears quite evident

that the origin of the solitary choanal polypus was in the right antrum which contains a mass of polypoid tissue and is in a state of subacute inflammation.

SUMMARY

1. The solitary choanal polyp is a sign of affection of the antrum even if the meatus appears clean. Occasionally it springs from the sphenoidal sinus.
2. This form of polyp with its pedicle results from an antral cyst becoming incarcerated in the maxillary or accessory ostium and develops as result of passive congestion and inflammation, and finally shrinkage of the mucus membrane of the antrum.
3. It is a fibromyxoma and its fluid content contains largely albumin and not mucus.
4. It occurs in about 3 per cent. of cases of antral disease.
5. No noteworthy symptoms arise until its size produces marked obstruction or bleeding.
6. The solitary choanal polypus may occur in children.
7. It is bound to recur because of the underlying pathologic condition.
8. A radical antrum operation is necessary for a complete cure.

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DISCUSSION

Dr. A. H. Andrews, Chicago: I merely wish to say that I think there is some mistake about the removal of a choanal polyp weighing eight ounces. I removed a polypus from the nasopharynx and otopharynx weighing a little over one ounce, and I don't see how a polyp weighing eight ounces could find a place in the nose and

nasopharynx and the patient still live. My case was published in the *Journal of Ophthalmology and Otolaryngology* near twenty years ago. A colored woman came to the clinic with a mass in the throat, she also had a polyp extending out of the right nostril. Not knowing anything better to do I took hold of the polyp with forceps raising it out of the esophagus, then slipped a snare around it and by means of the snare and forceps pulled until it came away. The polyp I had seen in the front of the nose came out with the mass from the nasopharynx. Attached to the mass were pieces of cell-like bone which I took to be from the ethmoid cells. The patient got immediate relief and disappeared so I was unable to follow the case.

I seriously doubt the reliability of the report of an eight ounce polyp coming from the nose or nasopharynx.

Dr. S. Salinger, Chicago: It was a very excellent paper; I would rather be the writer of it than the discussor of it. There is no controverting the numerous facts, historical and histological, which Dr. Morwitz has brought out so carefully in his paper.

The only point on which I might find some disagreement is the question of the therapy. None of us, I believe, has had the opportunity of seeing more than a very few of these cases in a lifetime of practice; I know that I have not, although I have not lived my lifetime yet. I hope. The few that I have seen have gotten well by simply removing the choanal polyp and letting them go. I have had cases under observation for several years after without evidence of recurrence and the reason I believe spontaneous cure takes place in the antrum is that the edematous condition which exists there exists by reason of the complete occlusion in the nasopharynx interfering with ventilation. When you remove this you get complete nasal ventilation and this edematous condition existing in the antrum, which as Hirsch pointed out, is a chronic state (the retro-nasal polyp being the terminal condition of that state) usually subsides.

I should like to know whether it has been the experience of any of the men to see a choanal polyp recur under palliative therapy.

Dr. Miller, Terre Haute, Ind.: I should like to ask regarding the microscopic examinations. I just removed from a man's nose a mass which protruded from the left nares and also about an inch from the posterior choana. The report came back that the growth was malignant, but it was of the consistency of most polyps that we remove from the nose. I also opened the antrum as the pictures preceding the removal showed it to be dark, but all I found was a thickened membrane with some fluid in it. There is a question now of some further treatment for the man. I am interested to know whether possibly there could have been a mistake in the pathology.

Dr. S. M. Morwitz, Chicago: I want to thank you gentlemen for discussing this paper.

In answer to Dr. Salinger, of course, it is true that one does not see enough of these cases to be able to

draw definite conclusion as to their recurrence when the polypus alone is removed. From what I gathered in the literature and from the findings of others who have operated on the antrum of these cases, there is such a definite involvement of the antral wall it appears evident that a recurrence is bound to occur. It would not be surprising if at times it does not occur. It is true that with the removal of the tumor there is removal of the pressure, consequently there is a release of tension on the stalk in the antrum and along with other conditions there is improvement in breathing. It is possible that with the improved ventilation the antrum may clear up and no recurrence occur.

In answer to Dr. Andrews I am not surprised that he asked that question because I was rather struck by that figure when I read it, but I believe I mentioned that it was removed under chloroform. This doctor speaks of a Mohammedan male who had this eight-ounce polyp. There was so much pressure in the nose from this tumor, such tremendous pressure, that it was impossible to do anything locally, so he was given chloroform. While being given chloroform the patient stopped breathing. They had to resuscitate him and then a second attempt was made under general anesthesia, and it was with great difficulty that the tumor was removed. I think there was some expert dissection done in order to remove it. I did not want to spend the time relating it. According to this author's report, the weight was eight ounces.

In reference to the microscopic findings in my case the laboratory report in this case was typical fibromyxoma. I intended to bring slides along, but on second thought I thought it might not be of sufficient interest or worthy enough because the sectional findings of the tissue were so typical of a fibromyxoma.

A NEW METHOD OF ANESTHESIA FOR THE ALLEVIATION OF PAIN OR INCISION OF A PERITONSILLAR ABSCESS*

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CHICAGO

No comment is necessary regarding the urgent need of any procedure that affords relief to those so unfortunate as to be afflicted with a peritonsillar infection. This presentation, in addition to the preliminary article submitted for publication in the *Archives of Otolaryngology*, is prompted by the enthusiastic reports of several colleagues who have utilized the method, in order that others may become acquainted with it. Peritonsillar abscess is familiar to all laryngologists. The marked distress of the patient and the decided difficulty encountered in the exam-

*Read before Section on Eye, Ear, Nose and Throat, Illinois State Medical Meeting, May 20, 1930.

ination of the throat and the subsequent incision, is uppermost in his mind. Any method whereby the patient can be so relieved of his pain that he will permit of examination or incision will undoubtedly be welcomed by the physician. If, in addition, this will permit him to tide his patient over the early stage of the infection, by affording relief from pain and permitting deglutition, until localization and liquefaction has occurred, it will help in avoiding the complications of too early surgery. The treatment, namely, incision, has not changed since the time of early Egyptian medicine, excepting, of course, the recent advocacy of tonsillectomy by Baum and his followers.

As this paper deals with the control of pain in this affection, a resume of the nervous supply will not be superfluous. Practically speaking, peritonsillar infections almost always involve the supratonsillar area. Only rarely does the process involve the region between the pillars and the tonsil at the lower pole. The lower third of the tonsillar area receives its sensory supply from a plexiform arrangement of many small tonsillar branches of the glossopharyngeal nerve. The upper two-thirds of the tonsillar area and the contiguous soft palate receives its sensory supply from the middle and posterior palatine nerves. These nerves arise as two or three small branches of the maxillary division of the trigeminal nerve, in the region of the pterygopalatine fossa in which the sphenopalatine ganglion is located. These small branches are known as the sphenopalatine nerves, and they pass down through the ganglion, where they pick up a number of sympathetic fibers, and emerge from the ganglion to course downward through the pterygopalatine canal and appear at the lesser palatine foramen in the palatal bone. They are then distributed to the soft palate, the upper portions of the pillars and the upper part of the tonsil. Let it be stated at this time, in view of the recent anatomical and embryological study, that the sphenopalatine ganglion is not a sensory ganglion but a sympathetic one, and that the fibers from the sphenopalatine branches of the maxillary nerve merely course through the ganglion and are not nervously connected to it. From this rather brief description it can be seen that anesthesia of the upper portion of the tonsillar area can be ef-

fected by anesthetizing the middle and posterior palatine nerves.

Yankouer, Sounenshein and others have popularized this by blocking the nerves as they emerge from the lesser palatine foramen, by the injection of procain just medial to the upper molar tooth. Furthermore, it can be seen that whenever one attempts to inject the sphenopalatine ganglion, he must of necessity at the same time anesthetize the palatine nerves, as they lie in intimate anatomical association. This is true whether one injects the ganglion, as it lies in the pterygopalatine fossa, via the nose, as advocated by Sluder or by means of the palate and pterygopalatine canal, as advocated by Ruskin.

It follows that, since practically all peritonsillar infections are located in the upper supratonsillar area, pain arising in and about this region may be effectively dealt with by cocainizing the palatine nerves, as they lie within the pterygopalatine fossa with the sphenopalatine ganglion. Although this method has been used by the writer since early in 1926, it must be stated that Hoople advocated this procedure in 1927 and that Gabriel has been using it also. The technique is simple.

A ten or twenty per cent. solution of cocaine or a two per cent. solution of Nupercane is applied by means of a cotton tipped applicator to the region of the sphenopalatine ganglion, namely, just behind and lateral to the posterior end of the middle turbinal. Stevenson has devised an extremely fine applicator for this purpose, one that can be easily insinuated about various obstructions and is so light that it will not fall out of the nose. We have found this applicator decidedly useful.

In a few minutes the patient will begin to experience relief from his pain. He will find it easy to open his mouth, and his ability to swallow will appear nothing short of miraculous to him. The throat may be examined without difficulty at this time and if necessary an incision may be made that is to all intents and purposes painless. Paralleling relief obtained by sphenopalatine cocainization in sphenopalatine neuralgia, success may be obtained in about 95 per cent. of the cases. In the remainder, due to the fact that ganglion and nerves may be situated in a deep lying fossa or in one that

has a thick layer of bone overlying it, the relief will not be secured, as the anesthetic cannot diffuse through to affect the nerve structures. In such cases one must resort to the use of a heavy Sluder needle and inject procaine into the fossa. We have not encountered such a case as yet, but the possibility must be borne in mind. To date twenty-seven cases of peritonsillar abscess have been afforded relief in this manner. In addition, one other case of painful tumor occupying the posterior pillar has been relieved of pain by this method. Several colleagues who have been using it have also experienced similar success, and it is hoped that others may have an opportunity in establishing its worth.

CONCLUSIONS

1. Peritonsillar infections most frequently occur in the upper portion of the tonsillar area.
 2. This area receives its sensory nerve supply from the middle and posterior palatine nerves.
 3. These nerves are intimately located, in the pterygopalatine fossa, with the sphenopalatine ganglion.
 4. A method is described for anesthetizing these nerves in this location for the relief of pain in the peritonsillar abscess and effecting anesthesia for its incision.
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DISCUSSION

Dr. C. K. Gabriel, Quincy: I wish to compliment Dr. Guttman on his excellent paper. I do not know of anything that I can add to what he has said, except that I have been using the method in about twenty cases and have obtained very good results in most of them.

I noticed that a short time after applying the cocaine to the ganglion the patients were able to open their mouths and could do it with less discomfort than they could before. Most of my cases have experienced a small amount of pain upon incising the tonsil, but I think it was much less than if nothing had been used at all. In one or two cases I have had the experience of not having any relief whatever from this application.

I have been using cocaine paste instead of the twenty per cent. solution of cocaine and adrenalin. One has to be extremely careful, of course, of causing intoxications. In order to do this, I use a very small amount of cotton, just a sufficient amount to absorb about one or two drops of the cocaine and apply this to the region of the posterior tip of the middle turbinal. Although this method may not be one hundred per cent. efficient in relieving the pain, I think it is a very definite help in these cases and I think it should be tried in all cases of peritonsillar abscess.

Dr. Walter Stevenson, Quincy: I am hardly prepared to discuss this very excellent paper. It is true as Dr. Beck has said that I am greatly interested in diseases of the maxillary antrum. I am greatly surprised to learn that Dr. Cavanaugh was unable to find but ten cases which appeared to be normal to x-ray after the antra had been injected with radiopaque substance. This, it seems to me, reflects greatly on the value of radiopaque x-ray study of the sinuses, because certainly we must have more normal sinuses than this would indicate.

It seems to me that before anyone can make a diagnosis of diseased sinuses that every feature of the case must be taken into consideration. By that I mean the history, the cytologic study of washings taken from sinuses, x-ray study without injection of radiopaque material, and also stereoscopic films. Recently we have been doing a great deal of cytologic study of antral washings, and have been very much impressed with the high percentage of cases which proved pathologic when the cytology indicates disease. It is only fair to say that our study of maxillary sinus disease indicates that radiopaque material injected into the sinus gives very definite information on a plate taken subsequently. This we have proved many times by operation and by examination of lining membrane microscopically.

One reason for the present pessimism in connection with sinus disease is the fact that a great many sinuses have been operated upon when in fact they were not the sinuses at fault. Careful study beforehand should give differential diagnoses, and it is my opinion that surgery gives brilliant results only when the sinus at fault is operated upon. Too many ethmoids have been operated on in the past, when as a matter of fact, the maxillary sinus was the real offender.

Dr. M. R. Guttman, Chicago: First, I want to thank Dr. Gabriel for his very kind discussion of my paper. In regard to Dr. Stevenson's question, if I gather this correctly, he means injection into the palate, opposite the molar tooth. Unfortunately, the site of predilection for the injection is also the site of the inflammation. Whenever we have a peritonsillar abscess it practically always involves the supratonsillar area in the palate just where the nerves emerge, and one would hesitate to inject anything within an inflamed area.

OPTIC NEURITIS ETIOLOGY AND TREATMENT*

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Since it is almost impossible to separate optic neuritis from papilledema, particularly in the early stages, the two conditions are generally discussed under one head. I shall therefore consider under this title any acquired swelling or

*Read before Section on Eye, Ear, Nose and Throat, Illinois College of Medicine.

inflammation of the nerve, whether it be due to pressure or toxemia.

Papilledema, in the most important group of cases, where the disc changes are an indication of increased intra-cranial pressure, is due to an edema of the nerve head which has a physical basis. The pathology of the condition has been thoroughly worked out by Gordon Holmes¹ and others. The swelling of the disc is due almost entirely to infiltration of its tissues and the anterior layers of the lamina cribrosa. As early as 1869, Schwalbe showed that the subvagal space around the optic nerve is continuous with, and can be injected from the subdural space, and pointed out the significance of this fact in choked disc. As the disc swells it displaces the retina laterally, sometimes throwing it into folds concentric with the disc margin. The axial fibers become raised to fill up the physiological cup, which is further filled in by the collection of fluids under the internal limiting membrane. The remaining layers of the retina show little or no change, there being only a slight edema in the immediate vicinity of the disc. The veins and capillaries are markedly distended, with hemorrhages on and immediately surrounding the disc. There is little if any evidence of inflammatory process, the few changes present being attributed to degenerative and destructive processes going on in the nerve. In cases of long standing new blood vessels form on the surface of the disc. As the papilledema subsides, the disc shrinks, there is a diminution of the nerve fibers and a proliferation of the neuroglial nuclei and fibers, with an increase of the fibrous tissue which surrounds the vessels. Sometimes a series of fine white dots seen radiating out from the macula similar to that seen in renal retinitis, but usually involving only the side toward the disc. Until the degeneration changes take place the vision as well as the visual fields may remain normal except for enlargement of the blind spot. The degree of swelling or protrusion of the disc can be judged by the way the vessels bend over its edges and by the difference in refraction between the top of the disc and the surrounding retina. This does not give the full amount of swelling owing to a slight edema of the retina. In cases where opacities of the cornea or lens will not permit of direct examination, the parallactic displacement of the disc with reference to the retina can be estimated

with the indirect method. Uhthoff² gives the following table of the causes of papilledema:

	Per cent.
Brain tumor	71.
Cerebral Syphilis	12.
Brain tuberculoma	3.6
Brain abscess	2.2
Oxycephaly	2.2
Tuberculous meningitis	1.1
Nephritis	1.1
Lead poisoning	0.3

About two-thirds of the cases of brain tumor show papilledema, depending on the location of the growth. Practically all tumors involving the cerebellum, fourth ventricle and temporo-sphenoidal region are associated with choked disc. Papilledema is less frequent in tumors of the cortical and subcortical areas and the pons.

It is a rare occurrence in cases of cerebral or intracranial hemorrhage or brain softening. You will notice that I have not touched on sinus disease as a cause of papilledema. While many authorities have been of the opinion that sinus infection may produce choked disc, the majority of present day neuro-surgeons do not concede this, but consider them to be cases of optic neuritis with an associated edema.

On the treatment of papilledema due to tumor there is practically no divergence of opinion as to the necessity of relieving the intracranial pressure as soon as possible. The ideal procedure of course is to remove the cause. In case the tumor cannot be localized, a decompression should be made in order to save the sight. The diagnosis is sometimes confusing owing to unusual complications. I recently saw a case in consultation where there was a tremendous choked disc in the right eye with swelling of lesser degree in the left eye, plus a complete flat detachment of the retina with extensive retinal exudates in the region of the disc. This case was not suspected of being due to brain tumor for a long time on account of the confusion due to the complication in the left eye. On the other hand, I was asked to see a child in the children's hospital who had been sent in for immediate operation, with a diagnosis of choked disc and brain tumor. This child had a most unusual fundus condition. The discs were slightly swollen with extensive edema of the retina immediately surrounding and enormous preretinal hemorrhage in both eyes which I took to be of toxic origin. Extensive laboratory and other tests failed to reveal the cause of the child's eye

condition or accompanying delirium. The neuritis and hemorrhages have subsided and the child is apparently well, without having had any treatment. The swelling of the disc may be very slight and transitory. About two years ago I examined a young girl whose headaches had not been relieved by several changes in her glasses. I found a suspicion of swelling of the upper nasal border of the discs, which was not constant on successive examinations. The fields showed only a slight indent, but this was constant. A diagnosis of brain tumor was suspected. She eventually was operated upon by Cushing who found an angioma which he was not able to remove. A muscle pack was used. Her condition seems to be improving.

Until the work of Walter Parker⁴ was published, there was much controversy as to whether the eye showing the greatest amount of swelling had any significance in determining the side on which the tumor was located. He proved, both with experiments on animals and observation on man, that the difference in the amount of swelling in the two eyes was dependent on the variation in intra-ocular pressure, the eye showing the lower tension always revealing the higher degree of swelling.

True inflammation of the optic nerve or optic neuritis, as distinguished from edema of the nerve due to increased intracranial pressure, may be divided into

1. Intra-ocular.
2. Retrobulbar.

Intra-ocular optic neuritis is seldom seen without some inflammatory involvement of the surrounding retina or choroid. Whereas the color of the nerve head in papilledema is even paler than normal, the redness is increased in inflammation of the nerve. Except where the inflammation is secondary to retinal or choroidal involvement, the redness is general and evenly distributed. The veins are generally enlarged and tortuous and the arteries smaller. The causes of optic neuritis are many. Ethmoid and sphenoid disease, orbital inflammation, injuries, tumors, erysipelas, meningitis, aneurisms, familial heredity, acute febrile diseases, anemia, chlorosis, diabetes, malaria, syphilis, lead poisoning, leucocythemia, pyemia, focal infection, etc.

Sinus disase is one of the most frequent offenders and may produce either intraocular

or retrobulbar neuritis. In the opinion of Sluder, it is not necessary to have pus, but the nerve may be affected in hyperplastic sinusitis. I can vouch personally for the truth of this statement. A few years ago a young girl consulted me on account of a blur over the left eye. The fundus appeared normal, the vision was 20/20—. The peripheral field showed no contraction. There was slight enlargement of the left blind spot. Her nose and sinuses were examined by a most competent specialist without positive findings. She became progressively worse. She was sent to the hospital for a general physical work up, including an exhaustive neurological examination, with negative results. The pupil became dilated and fixed, with bare light perception and finally no perception for light. On account of the history of the condition having come on following a cold, in the face of negative rhinological and all other physical findings, I insisted on having her ethmoid and sphenoid sinuses opened. No pus or secretion was found. The patient immediately began to improve and improvement continued. Although her disc is quite white, her vision in the left eye is 20/25 with an almost normal field.

I could report case after case where no secretion was found in the nose in which optic neuritis or retrobulbar neuritis subsided with shrinking of the mucous membranes of the nose. The visual acuity improves, the scotoma gets smaller or disappears and the symptoms of blur are dissipated.

I can recall one case where I was called in to see a patient who had become suddenly blind. The pupils were widely dilated and barely reacted to light. The fundus revealed nothing abnormal. A rhinologist was summoned to examine the nose. After shrinking the nasal mucosa to complete his examination the patient's sight began to return, and by morning was almost completely restored. No suggestive therapeutics were employed in this case as the dramatic result was as much a surprise to us as to the patient.

Optic neuritis resulting from meningitis from any cause is not infrequent. It may produce optic neuritis with or without ophthalmoscopic change. Sometimes blindness may supervene and vision restored more or less completely with no ophthalmoscopic change whatsoever. This

may be explained by a diffuse perineuritis extending the whole length of the optic tracts. Retrobulbar tumors or orbital abscess may give rise to optic neuritis, which may or may not manifest itself by blurring of the margins and swelling and redness of the discs.

Optic neuritis is usually found in acute myelitis.

Optic nerve changes may occur in syphilis in the entire absence of any discoverable evidence of intra-cranial involvement, either at the time or subsequently. It is not at all unusual to find optic neuritis or papilledema or optic nerve atrophy secondary to it, the result of gumma.

Klopfer⁵ has collected 214 cases of hereditary optic neuritis. Most of which were found in males. The ages ran from 10 to 40. Dr. Hedwig Kuhn has related a most interesting case of Leber's disease in which there was a retrobulbar neuritis with typical familial history, where pathological condition of the arachnoid with adhesions was found on operation. Rapid improvement in vision and fields followed the operation.

Colloid excrescences and hyaline bodies are sometimes seen on the papilla and may easily be confused with acute process in cases under suspicion. They appear as small rounded elevations, yellowish gray in color and often protruding beyond the margin of the disc. They may occur at any age, may accompany retinitis choroiditis or optic nerve atrophy or they may appear in otherwise perfectly healthy eyes with normal vision.

We also know that optic neuritis may occur in sympathetic ophthalmia. Beard⁶ has described a case of pseudo-choked disc where there was swelling of 8 diopters, no lardaceous enlargement of the papilla; aside from their tortuosity, no change in the appearance of the trunks of the retinal veins, no reduction in the peripheral fields, no enlargement of the blind spots, visibility of the optic nerve fibers not enhanced, and absence of any associated symptoms such as intermittent severe headaches, sudden vomiting, vertigo, cramps, etc. Loring and Graefe attribute the indistinctness of the borders of the disc in these cases to a superabundance of connective tissue at the papilla.

Retrobulbar neuritis from any toxic condition or the so-called toxic amblyopias are believed by

many to be due to primary involvement of the ganglion cells of the retina rather than the fibers of the optic nerve itself.

Under this head must be the exogenic poisons such as tobacco, alcohol, lead, arsenic and others as well as those toxins produced within the body, as in diabetes, beri-beri and neuritis peripherica gravidorum. Here we generally find central scotoma without peripheral involvement.

In another group consisting of quinine, salicylic acid and felix mas, changes are noticed in the form of peripheral and general depression of the fields.

Changes in chemical construction of drugs may alter their effect on the fields of vision. Thus, while quinine produces a contraction of the peripheral fields and central scotoma is rare, the reverse is true of ethyl hydrocuprein hydrochloride.

The same may be said of some of the arsenic compounds. While organic arsenical compounds rarely produce field changes, which consist of central scotomata when they do, organic compounds such as soamin, atoxyl, etc., manifest a high toxicity for the optic nerve and produce peripheral contraction resembling quinine and rarely scotomata. Igersheimer⁷ in a review of 37 cases of soamin poisoning found restriction of the nasal field in all those cases where the field had been taken and not a scotoma in a single one. These individual cases may be held up as a few of many examples of how very important it is to take, and carefully record, the visual fields. The perimeter, while invaluable, is insufficient, and a campimeter or tangent screen is absolutely essential for an accurate diagnosis in many cases.

Optic neuritis or papilledema is not a case for the ophthalmologist to treat. He is the one on whom the responsibility lies to determine the cause and observe and direct the case until the cause is found and removed.

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MEDICINE AND THE EYE

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It is the purpose of this paper to bring to the attention of the general practitioner and the internist especially, also to the specialist in more remote branches of medicine, first, a resume of the care of diseased and abnormal conditions of the eye; secondly, an outline to show how the eye physician and his colleagues in other branches of medicine may work together for the betterment of medicine and the patient, and also a clearer understanding of ocular problems, and thirdly, to attempt, in a measure, to relieve that feeling which places the subject of ophthalmology in an isolated field, which not only makes the medical man profess ignorance but indeed takes away all his desire to learn anything concerning the eye.

So often the phrase, "Oh! I don't know anything about the eye," is heard, and it occurred to me that repeated outlines concerning the eye brought to the great "unknowing" would not only familiarize them with the subject but on the other hand would actually instill a desire to learn more about it, whereas the laborious task of wading through a voluminous text-book might prove too great a task.

Intricate procedures must be left to the specialist in his respective calling but immediate and emergency care are economies both to patient, doctor, and specialist.

Eyebrows. Congenital absence and loss of eyebrows occur rarely. Remedies consist in transplantation of hairy skin from another part of the body, or an easier and usually satisfactory artificial reconstruction by so-called "beauty experts" gives excellent results especially when such manipulation is supervised by the physician. Premature gray hairs in the brows is thought to be due to an endocrine disturbance, but therapy is not at all satisfactory.

Malformations yield to plastic surgery.

Lids and Lashes. Congenital lid drops (ptosis) or even if it occurs after birth is readily amenable to surgery and in the proper hands unchallengable results are obtained.

At times the lashes fall out due to no de-

monstrable cause, but this is rare. An inflammation of the hair follicles (blepharitis marginalis) may be treated with 1 percent. yellow oxide of mercury ointment. Loss of lashes due to trachoma where it is necessary to epilate the inturning lashes which infringe upon the eyeball calls for plastic operation to evert the lids.

Infections such as styes or infected cysts (chalazia) are treated as any skin infection although it is sometimes necessary to evacuate the cyst and curette it to prevent recurrence. There is some reason to believe that such infections are predisposed by errors of refraction and this should be checked. A dilute solution of sulfuric acid given in doses of thirty drops three times a day orally may be used as in the case of boils, etc.

Lacrymal Apparatus. Cysts and tumors of the lacrymal gland are occasional and require surgical interference or use of x-ray and radium. Excessive tearing is a complaint often heard. At times the patient exaggerates the discomfort of the condition. In winter weather overflow of tears is more or less a natural phenomenon. However, conditions which cause closure of the lacrymal canal are found and are best relieved by finding the cause. Congenital absence of the puncta, infections in the sac, obstruction to the exit of the canal in the nose or a poor approximation of the punctum to the bulbar conjunctiva may be the etiological factor. Mild infections or temporary stoppage may be overcome by use of an astringent antiseptic such as neosilvol or optochin hydrochloride in 1 percent. solution used four to five times a day. Probing, extripation of the sac, and intra-nasal operative procedures must be left for the oculist in connection with his rhinological colleague. Operative results give a fair amount of relief but cannot be guaranteed.

Conjunctiva and Cornea. Foreign bodies in the conjunctival sac, under the the upper lid and on the cornea are so frequent that it behooves every physician to understand methods for eradicating this extremely irritating source of discomfort. Failure of removal may result in loss of sleep and rest, abrasion of the cornea, infection of the cornea with ulcer formation and finally scarring with diminution of vision. The upper lid must be entirely everted and a good well focused light used to examine all exposed

parts. A 2 per cent. Butyn solution instilled four to five times at intervals of two to three minutes gives excellent anesthesia and is harmless. If the foreign body lies lightly on the surface it may be brushed off with a dampened cotton applicator. If imbedded in the tissue infinite care in the use of an instrument for removal is pre-requisite and antiseptic precaution to prevent infection is very important.

A great many conditions called "red eyes" (acute conjunctivitis) are self limiting infections and get well in spite of treatment, although more rapid improvement is noted with *proper* care. Most of these infections are contagious and therein is the importance of early treatment.

Differential diagnosis between a simple acute conjunctivitis, an iritis, a beginning interstitial keratitis, an acute glaucoma or a purulent conjunctivitis due to the gonococcus makes the initial recognition of what may be the incipency of the serious disease of such vital importance to the patient, and rather than give the patient the usual druggists' prescription of "wash your eyes with boric acid," it is far safer to give the patient a mild astringent such as $\frac{1}{2}$ percent. zinc sulphate and watch them carefully for forty-eight hours. Argyrol and protargol have almost made themselves synonymous with "red eyes," however it has been scientifically proven that other antiseptics such as mercurochrome, optochin, hexylresorcinol, etc., are much more efficacious and there is no danger of argyrosis.

General conditions of malnutrition, anaphylaxis, infective processes in other parts of the body together with disease entities play their role in conjunctival infections and must not be overlooked.

External Ocular Muscles. Under this heading are included the squints or crossed and "wall" eyed, the diplopias (seeing double) and other muscle defects due to paralysis, congenital anomalies, etc. The majority of these conditions are naturally taken care of by an eye physician, but I feel that in a paper such as this many points of importance may be brought to the attention of those especially who take care of children, and thus give them a better foundation on which to answer the inquiring parents. The consensus of opinion is that all children with crossed eyes should be refracted and given

glasses, if needed, as early as possible after the condition is definitely established. Children do not "outgrow" such a condition. Operation is indicated as early as possible when it is determined that glasses or exercises have failed, this so as to enhance the chances for use of both eyes together, that is, the education of the fusion center which is only amenable to training during the first six to eight years of life. Operation may be only partial, and further operative procedure may be indicated, but it is believed that with proper technique a satisfactory cosmetic result is not only possible but most probable. The anticipation of loss of sight of an eye should be disregarded and the patient's or parents' fears should be allayed because of the rarity of any untoward results.

Seeing double and demonstrable single or multiple muscle paralyses are indicative of general disorder, unless due to local trauma, and investigation as to cause must be persistent and thorough.

Muscle operations are for the most part the least dangerous, easiest and most satisfactory of operative ophthalmology, and for anyone in these times to present himself to his fellow men with stigmata or physical defect, the most noticeable of human defects, is indeed an imposition on our intelligence.

Bulbar Conditions. This title is used because it is desired to group all those disease processes or anomalies which are not entirely apparent to the unaided examining eye of the physician. It is true that the iris for the most part is easily examined from the exterior, but, aside, from its reaction to light and accommodation, its further investigation remains for the ophthalmologist.

Perhaps the most outstanding change in the bulb is its protrusion or regression in the socket. This is always more noticeable when only one eye is affected. One must be sure of the condition and discount those apparent cases due to a widened or narrowed palpebral fissure. Such cases may be due to intra-ocular tumors, retractor orbital growths, sinus affections, brain lesions and goitre. Determination of the cause will indicate the treatment.

Every physician should have an ophthalmoscope and use it in the examination of every patient just as he used the stethoscope or the tongue depressor. Constant and persistent use

will enable the physician to learn the normal fundus and thus any departure from the normal will be easily noted. The fundus of the eye is the only place in the body where blood vessels are brought to the surface so that they may be studied in reference to the condition of other vessels in various parts of the system. It is true that most intra-globular lesions call for the investigation of the ophthalmologist but the early recognition of these is not often a prize to be sought for by the internist, thereby aiding in that most desirable factor in all medical investigation—the recognition of disease at its incipency.

If the patient consults the practitioner because of failing vision a usual answer is, especially to the individual over sixty years, "Oh, well, that is cataract and you have to wait until it gets ripe." If there is one point which I want to bring home it is the habit of always considering such a complaint as due to glaucoma (hardening of the eyeball) and not to cataract or any other easily treated affection. More eyes are lost due to this one attitude than can be imagined. Whereas the cataract has no deleterious effect on the entire mechanism of the eye except for its action of making one see through a cloud which cloud may be easily removed, that insidious increase in the firmness of the eyeball pressing on the delicate fibers of the optic nerve kills them and function will never return in dead tissue.

Acute glaucoma with the concomitant symptoms of nausea, headache, and vomiting which often accompany it, is frequently lost sight of in the rush to relieve the patient's stomach. It is a matter of a few seconds to note the redness of an eye and to palpate the closed lids for any evidence of difference in firmness of the eyeballs.

Accidents. Accidental instillation of irritating fluids, powders or other substances into the exposed conjunctival sac call for the simple emergency expedient of putting the patient's head under a faucet, holding the lids apart and douching the eye well with a running stream of water. Neutralization of acids or alkalis may be done later or a mild oil such as olive oil, which is always handy, allays irritation.

Penetrating wounds or concussion shocks call

for the application of a splint just as in other breaks of the body continuity. Atropine 1% dilates the pupil, puts it at rest and eases the pain which occurs with an iris reacting to light. Where a suspicion or symptom of glaucoma prevails atropine is contra-indicated. As in other surgery replacement of portions of the eye, suturing and repair must be done under aseptic surroundings.

In industries suitable protective non-shatterable glasses should be provided. It is also of interest to note here that the late Dr. Harold Gifford made the statement that in thirty years experience of some two thousand serious accidental injuries to the eye, in only three was the cause due to broken spectacles and none of these were very serious.

Refraction. To give the general medical attendant an insight into this often misunderstood subject which is the most mysterious of all the mysteries of the eye to the "unknowing," it behooves one to enumerate some dogmatic, definite statements which are the general consensus of opinion of those greatly experienced in refraction.

In generalizing it may be said that normally the shape of the eye causes parallel rays of light to be focused on the retina when the media, such as cornea, aqueous, lens and vitreous are normal. For purely physical reasons, if the eye is longer than normal (myopic) the rays focus in front of the retina and a diverging or concave lens is necessary to correct this, and conversely if the eye is shorter than normal (hypermetropia) the rays focus back of the retina and hence a converging or convex lens is necessary for the correction. If for any reason there is a distortion of the normal curvature of any of the refracting media (cornea, lens, etc.) in one or even more of the meridians (astigmatism) then mixtures of concave and convex lenses may be necessary for correction. The majority of eyes have a permanent length which does not change during life, after the individual has reached the age of stability, which age has a rather elastic range. The most outstanding exception to the rule is that individual whose eyes become progressively more myopic (nearsighted) due to hereditary tendencies, close application or other

causes not definitely decided upon at the present writing.

Young individuals because of the greater elasticity of their muscles are able to accommodate for all or some portion of their refractive error due to the fact that the ciliary muscle causes a change in the refractive power of the lens. Naturally to be certain of just what error of refraction exists in the eyes of these individuals, it is necessary to paralyze this accommodation and that is the reason for the use of drops (cycloplegics) such as atropine, homatropine, euphthalmine and hyoscin.

The ability to use the ciliary muscle or better the overuse of it causes symptoms of headache, malaise, unrest, and discomfort just as in fatigue of any muscle and therefore the necessity of glasses to aid this muscle.

Close work (less than 6 meters or 20 feet) puts more strain on this accommodation process hence it is felt that where progressive myopia is found limitation of reading, sewing and the like are of benefit.

The ability to read the line marked 20 at a distance of 20 feet with each eye separately is indicative of normal vision. However, even though the patient has normal vision beware that accommodation does not play a part in its production. On the other hand, there must be a cause for defective vision in every eye which does not accomplish the normal and this cause must be sought and recorded.

All eye examinations are based on vision and any discrepancy from the normal, causes too numerous to mention, calls for thorough investigation.

Illumination. The avoidance of glare whether thrown directly into the eye or reflected from some glazed surface such as a book or desk is conducive to good vision. Illuminating engineers have constructed the modern building and arranged the lights so that there is no directing of rays into the eye.

Reading while reclining does not injure the eyes if the light comes from behind or to the side of the head. Dim lights, glare and direct light in the eyes are to be avoided.

General Consideration. So far I have endeavored in a meager outline to cover ordinary and outstanding affections of the eye.

The use and practice with the handy electric ophthalmoscope in the hands of general medical men will go far in discovering incipency of eye diseases and what is of more import will enable him to see changes in the fundus which are indicative of general disease. Such conditions as arteriosclerosis, albuminuria, diabetes, anemia, syphilis, tuberculosis, brain lesions, local infections and general infections together with other diseased conditions often show first by changes in the "eye grounds" and warn of what is to come.

Recently a patient was referred to me by an optician who discovered that he was unable to give the patient normal vision. This patient was being treated by a high grade and professionally recognized internist for diabetes. When the young man complained to his physician concerning poor vision, the answer was, "Oh, go to — (an optical house) and see if you need glasses." The patient had a beginning diabetic retinitis which cleared up after a recheck of diet and insulin. I cite this case in order that you may recognize the incompetency of the optician, the lackness of the physician and the danger to the patient. Remarkable results have been obtained in the past ten years with the telescopic or "Distal" lenses in eyes which have lost some of their sight, that cause the layman to consider the individual blind. Ophthalmology is each day becoming closely linked with general medical problems, with laboratory research and closer affiliation in the problems due to the rapid life which is now in existence.

I have appended no bibliography to this article as excerpts have been taken at random and from personal experience, but to those who would know more concerning this subject, and that should include all physicians whose interest has been nil, I would recommend the study of the pamphlets published by the American Medical Association under the title of "Conservation of Vision Series," which are inexpensive and present an array of eye discussions by the men of authority in this country.

If in writing this paper I have in any way added to your knowledge or stimulated the urge to understand better the eye in relation to medicine, I shall feel that my efforts have not been in vain.

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FASCIA SUTURES IN THE REPAIR OF
INGUINAL HERNIA*

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It is a well known fact that many operations for inguinal hernia are unsuccessful, and that a recurrence of the hernia may follow at varying lengths of time. Chromic catgut, kangaroo tendon and silver wire have been used with only fair results in that class of extensive hernia in men beyond middle life. The disadvantage of catgut and kangaroo tendon is the fact that they are completely absorbed, often much sooner than expected. Even though the suture remains intact until union has taken place between muscle and fascia, it has been shown by Rosenblatt and Meyers that this union consists of a connective tissue formation about the muscle fibres. This connective tissue has a tendency to stretch and in certain individuals is not sufficiently secure to withstand the pull of the abdominal muscles or the stress of increased intra-abdominal pressure.

Silver wire, as a suture, has been discarded, for, while it is permanent, it is also an irritant to the tissues. It may lead to infection and oftentimes must eventually be removed.

Before going any further, it may be well to acknowledge that there are other factors in the recurrence of hernia than the type of suture employed. All will agree that in a successful herniotomy the sac must be thoroughly dissected and ligated as high as possible. It may be fastened beneath the internal oblique muscle at the internal inguinal ring. Transplantation of the spermatic cord may not be necessary in certain types of indirect or oblique hernia. It should be transplanted in the direct hernia and in the indirect hernia with direct weakness. However, we shall not discuss the advantages of one type of operation over another, since this paper has to do only with a particular type of suture employed, and must necessarily be brief.

The use of autogenous fascia sutures in the repair of hernia has not achieved the popularity it deserves. As long ago as 1901, McArthur first

reported using strips of the external oblique fascia as a mean of suturing the conjoined tendon and external oblique fascia to the ilio-inguinal ligament. This procedure has many advantages and will be demonstrated later, on the screen. In 1921, Gallie and Lemesurier brought out the use of strips of fascia lata from the thigh. Kunz has used strips of ox fascia prepared in 60 per cent. alcohol. Hodgkins employs transverse strips from the fascia of the rectus muscle, weaving them in place.

The permanency of transplanted fascia has been proven by a number of investigators. Autogenous fascia will remain in situ indefinitely and will produce no reaction in the tissues. Ox fascia strips, while they have the advantage of being ready for use and require no preparation, have the disadvantage, as shown by Rosenblatt and Meyers, that they produce a foreign body reaction in the tissues, with marked vascularization of the grafts, the proliferation of capillaries, and evidence of some absorption.

The Gallie method, consisting of the employment of strips of fascia lata, has the advantage of living autogenous sutures, but it requires an additional incision and prolongs the operation. The McArthur method is simple—it does not require a separate incision and does not increase the time of operation. In addition, the suture is left attached at the pubic bone and needs to be fastened only at one end. A strip of fascia of this type will withstand a pull of 11 to 14 pounds.

I will agree, however, that if the defect is a large one, such a suture may not be long enough to bridge the gap. In that case one may follow the Gallie technique and prepare a strip of fascia from the thigh.

Burdick, reporting in 1928, has employed it in 163 cases, made up 45 indirect, 14 indirect with direct weakness; 61 direct, 29 recurrent, 10 ventral, 2 umbilical and 2 epigastric. The following were the results: One double oblique recurred at two years. One double recurrent one side at 15 months. One direct at end of one year. One oblique (infected) at 9 months. He gives as his indications: 1, direct hernia; 2, oblique hernia, beyond middle life; 3, femoral hernia; 4, recurrent hernia; 5, ventral hernia. While to my mind the method may not be indicated in certain types of femoral and umbil-

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ical hernia, I believe it to be useful in any case wherein the fascia of the individual has lost its tone and in cases wherein we might expect insecure union between muscle and fascia.

Lyle reports a series of 100 indirect with 3 recurrences; 54 direct cases with 5 recurrences, and 4 direct indirect with no recurrences. Thus in a series of 159 cases there were 8 recurrences, or 5 per cent. In 200 indirect cases with catgut there were 18 recurrences, or 9 per cent; 75 direct cases with 10 recurrences, or 14 per cent. Coley, studying a series of 837 herniotomies using catgut, found 18 per cent. recurrences in the indirect cases. Erdman analyzed a series of 978 cases in patients over 60 years of age and found recurrence in 10 per cent. of the oblique and 42 per cent. of the direct hernias. He now uses the Gallie method in extensive cases and in older individuals.

It is unnecessary to quote further statistics, since the marked improvement in results over the catgut suture has been proven to all who have investigated.

The simplicity of the McArthur method should recommend it to the occasional operator as well as the expert. Great care must be taken to avoid infection, for that usually leads to a poor result and recurrence. I believe that the use of autogenous sutures will restore our confidence in herniotomy for the person beyond middle life, especially in extensive hernia of the direct type.

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DISCUSSION

Dr. E. S. Murphy, Dixon: I am in full agreement with all Dr. Pickett has said about the efficiency of this suture. At the meeting of the American Medical Association at Atlantic City in 1904, Dr. L. L. McArthur presented an autopsy specimen on which he did a radical hernioplasty four years before. The suture had lived throughout those four years and looked as normal as the fascial structures from which it was taken. This demonstration convinced me of the simplicity and utility of this suture and accordingly, since then, I have

employed this suture in the repair of herniae wherever it is practical. In brief, it produces less reaction in tissue than foreign suture material such as catgut or kangaroo tendon and lasts forever.

Dr. A. Merrill Miller, Danville: As a former interne of Dr. McArthur, I have a great deal of interest in seeing his name mentioned in connection with this fascial suture. The use of fascia as suture material is becoming more popular as is evidenced by the fact that each year we see a number of articles dealing with this subject. Three or four years ago in connection with an operation for appendicitis (McBurney incision) it occurred to me that a strip of fascia much longer could be secured by loosening the end below and cutting up well upon the belly muscle to give you a suture.

The advantage of using the suture with the muscle attached to it must be evident, because there can be no question of blood supply.

I think I have overcome one point which has been raised against the fascia suture by doubling the fascia trip back and securing the end so that it is turned back by itself.

Dr. John B. Haeberlin, Chicago: I had the opportunity of working with Dr. McArthur at the time he was developing this autoplasic tendon suture. There are a number of things about it that surgically should be considered, and that is, first, the strength of aponeurosis. Sometimes the aponeurosis is under-developed, it being very thin. In those cases you have to use a considerable width of flap. Sometimes it is very well developed and in these cases you do not need to use such a wide strip.

Another thing about the autotransplant is its tendency to slip. It is very slippery and it will unravel. That has happened a number of times with me. The attachment of the needle to the end of the fascia was the same as Dr. Pickett demonstrated, but working on a cadaver and working on a live subject is a little different.

The autoplasic fascial transplant and suture can be used in many places. For instance, the anchoring up of the kidney. Once in a while with large hernias you have to take your fascia lata of the thigh and bring it up over the weakened structures of the abdomen. Personally, I have used fascial sutures in ventral suspension and ventral fixation, instead of using catgut. When the fascia is anchored, we always use foreign material to fasten. There has been no way devised up to the present time in which we can fasten the end of it so it will hold in the living individual. You always have to implant some foreign material.

I will say that some men I know who have used fascia transplants and fascia sutures used it for a number of years, have now discarded it, and I do not think Dr. McArthur is using it himself as much as he did some ten or twenty years ago.

Dr. W. J. Pickett, Chicago: So far as the criticism of the suture slipping is concerned, it is a very good one. I did not mention the fact that in order to avoid this we slip in catgut here and there along the course

of the strip of fascia, and then if it does slip at one suture of course the remainder will hold it pretty well in place.

I should like to endorse its use in other things beside the repair of hernia.

SOME OBSERVATIONS ON THE NEWBORN*

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In a good many of our larger hospitals the newly born infants are examined by a pediatrician and cared for under his direction. This fact has meant that an interest is being stimulated in a field more or less neglected until recent years. There have always been a few men who have studied newborn infants carefully, but the great majority of physicians including pediatricians and obstetricians will admit that their first hand information in this field is quite limited. The opportunity that is now available for study of the newborn should increase the general knowledge and make this period of infancy as familiar as any other period in the individual's life.

My justification for talking on this subject, is, that I have had, by chance, the unusual privilege of examining a very large number of newborns in the past four years as a member of the Pediatric Staff of the Cook County and the Presbyterian Hospitals: in round numbers about twelve thousand.

The purpose of this paper is not to discuss the various diseases and peculiarities of these infants as given in our excellent text-books, but rather to call attention to some of the interesting features observed in the course of daily routine examinations and to state some of my impressions. A comprehensive statistical survey of our findings is being prepared which we hope to be able to present at some future date.

To become familiar with the normal, in order to be able to detect variations from the normal, is as important in this field as in any; and one has to examine a goodly number of normal infants before he can intelligently pick out the abnormal ones. It might well be stated here that the thing which has impressed me most is the overwhelmingly large percentage of normal

newborns and that most of the variations from the normal have been, from a practical standpoint, unimportant. For the sake of making this point clear let us consider what are the serious abnormal conditions that we may encounter, and try to realize how rare they are. *First*; those due to developmental defects: spina bifida and hydrocephalus, serious congenital heart defects, abnormalities of the digestive tract such as esophageal atresia, atresia at the duodenum and at various levels along the tract including imperforate anus; hare-lip and cleft palate; severe types of hypospadias; epispadias; extrophy of the bladder; anencephaly; abdominal wall defects with evisceration; cystic hygroma of the neck; osteogenesis imperfecta; chondrodystrophy fetalis, and hydrops universalis neonatorum. *Second*, those due to birth injuries or the accidents of labor: cerebral hemorrhage and other intra-cranial injuries; spinal cord injuries; severe brachial plexus injuries; asphyxia pallidum; atelectasis; serious fractures; serious forceps injuries. *Third*, those due to disease of the mother: congenital syphilis; congenitally weak infants due to toxemias from various causes, fetal endocarditis etc. *Fourth*, those due to conditions arising after birth: sepsis of the newborn; pemphigus neonatorum; pneumonia; icterus gravis; thymus disturbances; hemorrhagic disease of the newborn; serious feeding difficulties. Even in a large institution like the Cook County Hospital not one of the above mentioned conditions may be seen for periods of a week or more at a time.

What then are the things we observe if the serious things are so rare? Let us assume that we have an infant in front of us for examination. We will start with the head.

One of the most variable features of the head is the character of the fontanelles and sutures. There is nothing constant about the size of the anterior fontanelle which may be either very large or barely admit the finger tip in perfectly normal infants. So-called embryonic fontanelles are quite commonly present. These are the parietal or sagittal fontanelle consisting of a widening of the sagittal suture a short distance anterior to the posterior fontanelle, the frontal or metopic fontanelle just in front of the anterior fontanelle, the mastoid fontanelles, and occasionally one may feel a definite sphenoidal

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fontanelle just above the zygoma. The cranial bones are sometimes quite thin, and definite soft areas may be felt especially along the suture margins. This is the so-called physiological cranio-tabes. Cephalhematomas occur almost exclusively on the parietal bones, usually only on one side but may be bilateral. We have observed a few on the occipital bone and once on the frontal. I have never seen an infected cephalhematoma. They always eventually disappear spontaneously, but may at times persist for several months. They never need to be aspirated. Over the parietal bosses we sometimes see pressure necrosis ulcers develop, due to long continued pressure of the boss against a bony prominence in the pelvis. The area first looks bruised, then a circumscribed reddened swelling appears, the central portion of which finally sloughs out as necrotic tissue; leaving a deep ulcer which heals with a scar formation and a bald spot. The occurrence of such a condition is usually not recognized, it being mistaken for an abscess and treated accordingly.

Now and then we see infants with a very marked assymetry of the jaw, giving the impression of a fracture of the mandible on one side. When one attempts to close the mouth it is noted that the gums do not meet evenly but gap open on one side. This is due to extreme flexion of the infant's head in its position in the uterus; the chin rotated, so that one shoulder presses firmly against the ramus of the mandible thus moulding it. The condition corrects itself in a few weeks or months. The gums are often very irregular with a veritable saw-tooth margin. Oval shaped ulcerated areas at the junction of the soft and hard palate or on the anterior pillar or the posterior pharyngeal wall are usually due to too vigorous swabbing of mucus from the throat at the time of delivery.

In front of the lobe of the ear, usually on one side only—but occasionally both, we quite often find a small pin point sinus from which can be squeezed a white greasy substance which consists of desquamated epidermis and sebaceous material. These are known as fistula auris congenita and are due to a faulty fusion of the ectodermal buds which form the ear lobe.

The area of telangiectasis so frequently seen at the nape of the neck and popularly known as "stork bites," are also quite often seen on the forehead over the glabella, also not infrequently

on the upper lids, and sometimes on the nose and upper lip. These are usually invisible after a year.

Breast engorgement is practically a universal finding in all full term infants, male and female. The degree of engorgement varies a good deal. Engorged breasts need only to be kept clean and left alone. Mastitis we see very infrequently where a "hands off" policy is strictly maintained. In the immature infant the breasts are not engorged and on this subject I am now doing some investigation by which I hope to be able to prove that absence of breast engorgement is a dependable sign of immaturity.

A discussion of congenital heart lesions will not be undertaken here, but I wish only to remark that it is not easy to hear some heart murmurs in the course of routine examination, and I am sure we have missed many. One more point in regard to heart murmurs: they are sometimes plainly heard in the first day or two of life and by the end of a week or ten days are gone.

Nearly all negro, mexican, and mongolian infants have a bluish-gray colored area over the lumbo-sacro-gluteal region due to specific pigment cells in the corium. Such pigmented areas are often seen in infants with mixed blood and a few instances have been reported in pure caucasians. These areas may be on different parts of the body but seldom on the flexor surfaces.

Two racial peculiarities have been noted in the course of our examinations: first, very few negro babies have hare-lip and cleft-palate deformities, and second, in the negro infants polydactylism is extremely frequent, while in white infants it is extremely rare.

In the course of the routine care of newborns we have observed some conditions not commonly mentioned in text-books and I should like to speak of some of these. Infection of a tooth-bud leading to osteomyelitis of the maxillary bone has been observed three times; one infant died, but two recovered after long illness and final surgical removal of sequestra. A case of partial gigantism, the size of the index finger and thumb of the left hand was nearly that of an adult's, while the rest of the hand was of normal size. The infant was normal in all other respects. Three cases of cystic hygroma of the neck. Two cases of ectopia testis in which one

testicle was in the perineum outside of the scrotum. One case of unilateral exophthalmus due to hemorrhage into the cellular tissue of the orbital fossa similar to the condition sometimes seen in severe scurvy. In this case there was complete subsidence of the swelling in about four weeks. Several cases of so-called congenital impetigo or pyoderma, in which there were pustules on the skin when the infants were born.

I am aware that no startling statements or brilliant discoveries have been recorded in this paper, but if by these remarks, interest in this important field has been stimulated, I shall be satisfied. Let us remember that each newborn infant is an individual patient, just as truly as is its mother, and deserves a careful physical examination and intelligent care.

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DISCUSSION

Dr. C. C. Jones, Bloomington: I believe more emphasis should be placed upon closer co-operation between the obstetrician and the pediatrician. Careful examination and observation of the newborn will enable one to not only recognize the normal infant but to distinguish deviations from the normal. If proper treatment is started at once infant mortality will be reduced and later suffering prevented. While congenital heart murmurs vary from time to time they are of little concern unless other symptoms are present. I have not seen osteomyelitis in the newborn. It is not uncommon among children and when we find it in the jaw we usually find several other lesions, especially involvement of the long bones. Congenital dislocations of the hip are easily diagnosed but frequently overlooked, and special attention should be paid to that part of the body. Dr. Parmelee is to be congratulated on the observations he has made in compiling this comprehensive paper.

Dr. A. H. Burr, Evanston: Regarding the prevalence of extra digits in the colored race and the fact that this is a hereditary peculiarity. Over forty-five years ago I delivered a young colored mother of a child with two extra fingers, one at the base of each little finger. The mother of my patient was present, and she stated she had had them, and they had been removed; the mother of the new infant had also had them. There was no bony union with the palm of the hand in my cases.

Dr. W. L. Crawford, Rockford: Dr. Parmelee is doing a distinct service to the profession in attempting to bridge this gap which exists the first two weeks in every child's care. Ordinarily the youngster is more or less overlooked unless there is something drastically wrong. I think they are allowed to drift along for a few weeks, unless there is something really abnormal to attract attention.

It is worth while stressing the factor of breast engorgement. Since I have known he was interested in this, I have made it a point to watch carefully for that condition, and have yet to find in any youngster I thought was immature any signs of breast engorgement. You cannot miss it if it is present.

As to the care of cephalhematoma; sometimes these blood tumors have been drained. There is no need of it. They never become infected if left alone, and about the only way they can become infected is for the physician in charge to introduce infection from outside in opening the swelling.

Dr. R. H. Graham, Aurora: Do you consider coagulation time and bleeding time of any great importance in making these examinations?

Dr. George E. Baxter, Chicago: I am sorry Dr. Parmelee did not have time to discuss in more detail some of his other observations. There are some diseases that develop in the new-born which are common and which merit careful consideration. The frequency with which fever develops in the new-born in the first few days of life is apt to be misinterpreted or may not stimulate enough interest in the infant by the physician. The infant often develops fever from inanition. Fevers from this cause have been too frequently misinterpreted; the baby is treated for intestinal disturbance, and given castor oil, which is not good treatment. Other infections may occur. One simple thing is infantile impetigo, frequently observed, which although not a serious condition in an infant, the lesions may become secondarily infected and a mild eruption become a serious one. I would like to stress the importance of a careful examination of a new-born infant that develops fever, and the fact that seldom if ever is the intestinal tracts responsible for the temperature that develops.

Dr. A. H. Parmelee, Oak Park (closing): I saw the first case of osteomyelitis of the jaw in Pirquet's clinic in Vienna six years ago. I found there was very little literature on the subject, though Finkelstein's textbook has some good work on it. Perhaps it is primary tooth-bud infection in the majority of cases, although osteomyelitis might be part of the general sepsis of the newborn. I have seen osteomyelitis of the clavicle and of the sacrum in a child as part of general sepsis of the newborn. We had recently an infant of two months with osteomyelitis of one elbow and one hip which started at three weeks of age. As to the congenital dislocation of the hip, in the examination of 12,000 infants I have not seen one. I may have skipped one, but I do not believe so. Congenital hip dislocation must be rare. The extra digits nearly always occur in negro babies. They are pendulous, thin pedicles, with one little cartilage or bone and a tiny nail. We tie them off. Dr. Crawford, if you see a lot of new-born infants, it would be interesting to me if you would pay special attention to breast engorgement. Immature new-born infants have no breast engorgement for some physiologic reason. Whether the hormone has to work longer and has not finished its work until the baby is full term, I do not know. It is the only sign of immaturity I can depend upon in the border-line cases.

You cannot go by the mother's statement of last menstruation. As to coagulation and bleeding time, we do not regularly make that test at County; we do at Presbyterian. It is not always dependable. If it is greatly out of proportion and does not soon return to normal, something should be done about it, particularly if the child had a difficult birth. We know there are such things as transitory fevers that take care of themselves as soon as the baby gets fluid. That does not mean that you should not make a complete physical examination to see if there is something else wrong. If nothing else is found you can go on the supposition that it is a transitory fever. Respiratory infections cause most of the fevers not due to dehydration. I purposely avoided the subject of bowel infections and laxatives. I do not believe in laxatives, and I have not given a dose of castor oil for many years. In regard to the prepuce. It has infrequently been our experience that it is so tight that it interferes with passage of urine; I have seen a few cases. I think the importance of irritation due to a tight prepuce has been exaggerated.

MEDICAL AND SURGICAL COOPERATION IN PEDIATRICS*

CHARLES K. STULIK, JR., M. D.,
CHICAGO.

Realizing the definite benefit derived from the close cooperation of the obstetrician and pediatrician in the development of the new-born service, we are developing a close cooperation of the surgeon and pediatrician in the management of surgical cases. Our plan consists of entering all dispensary, surgical cases on a joint medical and surgical service. At first naturally there was some question of the division of labor and responsibility. The medical service takes the history, which includes the family and past history. In preoperative tonsil cases especial attention is focused on the history of frequent sore throat, chorea, growing pains, definite rheumatism, scarlet fever and otitis media. A complete physical examination is made and special tests as tuberculin reaction, x-ray, blood chemistry and skin tests are made when indicated. Except in emergencies definite preoperative preparation is carried out until the surgeon and pediatrician feel that the patient is well able to undergo operation. In infants especially, a careful dietary regime is instituted and fortified with such factors as viosterol and

fruit juice. Where indicated calcium lactate and syrup of iron iodide are added as a tonic. It is our impression that sunlight or ultraviolet light has been useful in the improving of appetite and the general well being of those children with chronic infections as endocarditis. The mental attitude of the older child is also improved during the preoperative preparation and this is a factor in improving him as a surgical risk. Other medication as arsenic, digitalis, salicylate and sedatives is used as indicated.

The end results in our cleft palate and hare-lip babies have been most gratifying. These infants are carefully examined and foci as pyelitis, otitis media and furunculosis checked or eliminated. An adequate diet is given by dropper or spoon. Operation is performed when the infant is gaining weight and has an improved tissue turgor. Urinalyses and blood examination are repeated in infants with pyelitis and anemia. In a few instances a preliminary blood transfusion has been of definite value in bolstering the infant. A routine roentgenogram of the chest is made in cleft palate babies, because of the rather frequent association of enlarged thymus. After operation a quiet, restful infant is a factor in healing and decreasing tension on the sutures. Most of the small infants rest after doses of 5 to 10 minims of paregoric, but some will require addition of several grains of bromide. We have not had to resort to stronger medication.

In the preliminary management of cleft palate drawing together with strips of adhesive appears to be of no value. The skin is easily irritated and enough traction to increase approximation of the cleft cannot be obtained with ordinary adhesive plaster traction. Dropper, or in some instances, spoon feeding is carried out in the postoperative feeding to prevent nipple pressure and tension on the sutures. Most of the cleft palate infants are given calcium lactate, viosterol and syrup of iron iodide before and after operation.

The nose and throat cases are given a complete physical examination and those with any cardiac findings are checked by a cardiologist.

The children with chronically enlarged tonsils are regarded as precardiacs, when there is a history of either chorea or rheumatism. Recently a boy of ten, diagnosed as a congenital pulmonary stenosis with ductus arteriosus patency,

*Read before Illinois State Medical Meeting, Section on Medicine, May 22, 1930.

*From Pediatric Service, Presbyterian Hospital and Central Free Dispensary.

developed an acute cardiac dilatation two days after tonsillectomy, under general anesthesia. His left heart border suddenly dilated to the anterior axillary line. His pulse increased to 140 and his respirations to 40. X-ray verified the dilatation. Under subcutaneous digitalis therapy the signs of acute cardiac decompensation disappeared and within 72 hours the left border was found back in the midclavicular line. This illustrates that cardiac involvement, even though apparently quiescent may be the cause of definite postoperative disturbance.

All preoperative tonsil cases are referred to the dentist for mouth hygiene before operation. This procedure decreases the postoperative pyogenic membrane and prevents the aspiration of loose teeth, which may be forced out of the alveolar arch by placing or removing the mouth gag. In a recent postoperative pulmonary abscess a tooth fragment was coughed up spontaneously with pus. It was not apparent in the roentgenogram taken on two different days.

Medical and surgical cooperation will increase our diagnostic ability in such borderline cases as lower central pneumonia, diaphragmatic pleurisy, appendicitis, diverticulitis and abdominal adenitis. Recently a boy of twelve was operated on because of pain, tenderness, distension and vomiting. The left abdomen was rigid, painful and tender. Because of recent typhoid fever a tentative diagnosis of perforated typhoid ulcer was made. The youngster had been a febrile for about 20 days. The resident medical staff had one urinalysis. At operation a left pyelonephritis was palpated through the abdominal incision. An interesting observation was that the lymphatics were markedly injected and the abdomen was otherwise unchanged. The first postoperative urine contained a large quantity of pus. An uneventful postoperative recovery resulted.

Last winter a boy of eight came to us with pain and tenderness in the right abdomen. There was slight vomiting and rectal examination showed some tenderness and resistance in the right side. Because of increased bronchovesicular breathing in the right lower chest an x-ray was made. A right lower central pneumonia was revealed. With the appearance of a frank lower lobe pneumonia the abdominal symptoms disappeared.

Osteomyelitis cases, especially when the hip is involved often present difficulties in diagnosis. With cooperation we will develop diagnostic points in the differential diagnosis of arthritis, osteomyelitis, tuberculosis and deep pelvic and inguinal adenitis.

Acidosis and cyclic vomiting are seen as essential symptoms of appendicitis or diverticulitis of the chronic type. A similar acidosis is seen in some children following ether anesthesia and our diagnostic skill must be keen in the differentiation. With co-operation our correlation of symptoms and pathology will improve.

The advantages of medical and surgical co-operation are:

1. The patient becomes a better surgical risk.
2. The surgeon obtains better end results.
3. The pediatrician improves his diagnostic and therapeutic ability.

1658 W. 21st St.

DISCUSSION

Dr. George E. Baxter, Chicago: It is unfortunate that there are not more people present to hear this paper, because this co-operation is one of the fundamental things, in the practice of medicine. We started some years ago the out-patient department of the Children's Memorial Hospital to bring about greater co-operation between surgery and medicine. We have not met with complete success as yet. We have a very large clinic which is difficult to manage, and we have not thoroughly convinced the surgeons as to our point of view. We did start in the tonsil department. We insisted that every case that was up for tonsil operation should first be passed upon by a medical man. It is certain that the whole tonsil problem is not settled. It is necessary that there should be an increasing co-operation in the decision as to that one thing alone. It is an important thing to remember this; the average general practitioner or pediatrician is in a much better position to determine the indications for removal of tonsils. We can say to the man who does the work that he is better able to do it, but the practitioner should decide whether or not it is necessary. The subject of this paper is important and a matter that is much discussed in medicine today.

Dr. Charles K. Stulik (closing): Palpation of a child's abdomen should be very gentle. One should gain the child's confidence, go about it gradually, and before you know it you can palpate the spinal column. Sometimes the mere fact that your hands are cold will cause the child to shrink and cause a voluntary rigidity. We look for a rigidity, of course, but all children are given a routine examination. It has been our idea to leave the complaint for the last part of the examination, so that we are not likely to miss some other point that may be out of bounds. An interne on the orthopedic service recently asked me to look at a youngster with

a temperature of 104°. He thought something was wrong under the cast. When I approached the child, there was the definite odor you get from diphtheria. Because he was on the orthopedic service he felt that the trouble should be under the cast, and it did not occur to him to look elsewhere by making a complete physical examination.

THE SURGICAL AND ECONOMIC PROBLEMS OF INFANTILE PARALYSIS*

EDWIN W. RYERSON, M. D.

Professor of Orthopedic Surgery, Northwestern University,
Medical School

CHICAGO

The successful solution of the surgical problems of infantile paralysis would imply a similarly successful solution of the economic problems, but it must be acknowledged that in spite of the many important advances of later years in the treatment of these cases, the final solution has not, as yet, been attained.

Each year the disease reaps a new harvest throughout the world, and leaves behind it a varying but always considerable number of individuals whose earning capacity will forever remain impaired by a permanent loss of power in some of their muscles. The extent and distribution of this paralysis will determine the amount of each patient's physical handicap as a wage-earner. The reduction of this disability to the individual minimum is the surgical problem with which we are confronted. The economic problem concerns itself with the providing of work which can be performed by the handicapped. The surgical problem is to restore usefulness to paralyzed limbs and stability to weakened spinal columns.

It is fortunate that the disease is much more apt to affect the feet and legs than the rest of the body, because it is much easier to correct permanently the deformities and weaknesses of the lower limbs than it is to restore the intricate and highly differentiated functions of the arms and hands. Each case represents an individual problem which must be studied carefully. The manifestations of the disease may conveniently be divided into three stages: first, the acute, or stage of onset; second, the stage of repair; and the third, the chronic stage. This paper does not deal with the acute stage. During the stage of

repair, which lasts for two years, deformities are to be prevented, so far as possible, by suitable apparatus, and any muscles which are not completely paralyzed are to be strengthened by muscle-training.

At the end of two years of this treatment it is time to make plans for permanent relief of the remaining disability. As a general principle, reconstructive surgery is more apt to succeed in older patients than in the very young. It is therefore wise to continue with the conservative treatment in small children unless the deformities are increasing too rapidly, until the age of eight, ten, or even twelve years. This means that if the patient is getting along well enough in the braces, and is satisfied to continue wearing them, it is well to wait until near the age of puberty before performing radical operations.

The general principles underlying the operative procedures are based upon the endeavor to improve the functions of the impaired machinery of the body. All attempts to restore the function of the paralyzed nerves have, up to this time, been failures. It would, of course, be ideal if the motor cells in the anterior horns of the cord could be rehabilitated, because here is the essential primary lesion, but it is not in our power to repair these damaged cells. Many efforts at the transplantation or grafting of the peripheral nerves have been made, with negative results. Nerve ends have been planted into the paralyzed muscles (neurotization) with similar failures. Thus our possible points of attack are reduced to the muscles and the joints.

In cases where only one or two muscles remain permanently paralyzed a well-planned and well-executed tendon or muscle transplantation may be of great benefit. The best example of this method is in the case of a drop-foot where the paralyzed tibialis anticus can be replaced by the use of the healthy extensor proprius of the great toe, or by moving the peroneus longus to the anterior surface of the leg and passing it down the sheath of the tibialis anticus and suturing it to the inner cuneiform. Paralysis of the great calf muscle can be improved by inserting the peronei and the posterior tibial into the os calcis. If there is any sidewise deformity of the foot, such as a valgus or varus, this deformity must be corrected by a wedge-shaped osteotomy. A long experience has convinced me that practi-

*Read before Section on Surgery, Illinois State Medical meeting May 20, 1930.

cally all cases with paralysis of the leg and foot should have the lateral mobility of the foot stabilized by ankylosing these joints which allow this lateral mobility. These joints are first, the subastragaloid, between the bottom of the astragalus and the top of the calcaneus, the astragaloscaphoid and the calcaneocuboid. When these four bones have become firmly welded together a solid and useful base for weight-bearing is formed which will ordinarily show no tendency to become laterally deformed into a club-foot or a pes valgus. In most cases it is wise, at the time of operation, to displace the foot backward to a greater or lesser degree so that the tibia will be more nearly in the center of the foot. It is sometimes wise to ankylose the joints anterior to the ones mentioned above, in cases of marked varus or valgus deformity, so that the scaphoid fuses with the cuneiforms and the cuboid with the fifth metatarsal.

The object of all this work is to provide a foot which will carry the weight of the body without giving way or becoming twisted to one side or the other, and will have enough power in flexion and extension to propel the body properly. The lateral motions of the foot are neglected and obliterated entirely, as in these cases they are only sources of trouble. In a few cases it is undoubtedly wise to ankylose the ankle joint itself, where no muscle remains which can be used competently to control motions of the foot.

In connection with practically all tendon transplantations in the foot the stabilizing operation described above, and to which I gave the name in 1923 of "triple arthrodesis," will be found not only advantageous but even absolutely necessary.

Whitman's astragalectomy, which has been widely used for various paralytic deformities, has given its best results in calcaneo-valgus deformities. Its chief defect is in the lack of control over the lateral mobility of the foot. It is my impression that this operation is not used as frequently as a few years ago. Many feet with greater or lesser muscle power can be made strong and serviceable by the proper operations. One may almost state that every paralyzed foot can be improved by operation, but this work must be done by those who have given especial attention to the subject.

In similar manner weakness and deformity in

the knee and hip can sometimes be greatly improved either by muscle transplantation or by ankylosing the joints. If the spinal muscles are sufficiently paralyzed to result in lateral curvature of the spine or scoliosis it is undoubtedly the best of wisdom to perform an ankylosing operation upon the weakened portion of the spine as soon as it has evidently become impossible to control the progress of the deformity by more conservative measures.

The orthopedic treatment of these classes of the handicapped is highly complicated and highly specialized, and should be carried out as far as possible in Orthopedic Institutions with the co-operation of the State of Illinois, which should provide adequately for the children during the long period of institutional stay, and should later provide suitable employment for these individuals after the maximum of physical improvement has been attained by the orthopedic surgeon.

122 S. Michigan Ave.

DISCUSSION

Dr. Hugh Cooper, Peoria: This was certainly a very concise and clear-cut discussion on the problem of the paralytic child, and as Dr. Ryerson has hinted, the problem is not only one of correction of these feet and hands, but it is an economic problem which the country throughout is just beginning to appreciate properly.

The larger cities such as Chicago, of course, have taken care of their crippled infantile cases in institutions, and have taken care of their education and proper rehabilitation for some time, but we in the smaller cities and rural communities are just beginning to appreciate the problem we are up against in trying to take care of these children.

Simply correcting one of these little feet is not all that can be done for them. They never can be good feet. They are made as good as surgery can make them, but still they are weak feet. The lives of these children must be regulated and they must be educated so they can be put to some sort of work by use of their heads or hands and so make themselves independent. Throughout the state I think we are just now beginning to see these schools and hospitals appear for crippled children where this work is being carried out.

I think we are all conversant with a dozen corrections to stabilize various types of paralytic and deformed feet, but we must admit that the fundamental idea in most of these corrective procedures rests on the so-called triple arthrodesis of Dr. Ryerson. That is the arthrodesis or fusion between the astragalus and the os calcis, between the astragalus and the scaphoid, and between the os calcis and the cuboid. Whatever we do to these paralytic feet, if we want to keep them

as we fix them at the time of operation, we have got to stabilize or fuse those three joints.

Probably the only outstanding operation that does not use this fundamental is the operation which Dr. Ryerson mentioned, Whitman's astragalectomy, which is, I think, coming to be recognized as applicable to only a small percentage of the deformed feet. The outstanding case is calcaneus deformity, which some of us still believe gives better results with an astragalectomy.

I am happy to have had the chance to discuss this paper. I think it covers the ground very satisfactorily.

Dr. Robert Ritter, Chicago: In our clinic we are using the triple arthrodesis more than Whitman's astragalectomy for all types of feet. Several times we have had to go in on feet which have had the astragalus removed. It is very difficult to correct those feet after they have been operated on and the feet not set far enough back.

PSITTACOSIS

T. M. Rivers, G. P. Berry and C. P. Rhoads, New York (*Journal A. M. A.*, Aug. 23, 1930), conclude from their studies that the virus of psittacosis is in the feces and in the material collected from the nose, mouth and procrop of infected parrots. Parrots and monkeys can be infected by intranasal instillations of the virus. Parrots and rabbits that have recovered from a primary infection are refractory to reinfection. It is not a simple matter to demonstrate neutralizing properties in convalescent human serum. In parrots and in mice, the principal lesions occur in the liver and spleen. Young monkeys (*Macacus rhesus*) are susceptible to intracerebral, intratracheal and intranasal inoculations of psittacosis virus. When it is instilled in the nose or injected in the trachea a characteristic pathologic picture occurs in the lungs which is similar to that observed in man.

SENSORY DISTURBANCES FOLLOWING OPERATIONS OF THE KIDNEY

A case of neuralgia of the twelfth intercostal nerve following traumatization as a result of surgical exploration of the kidney is reported by C. B. Huggins and Paul C. Bucy, Chicago (*Journal A. M. A.*, Aug. 30, 1930). The pain radiated from the right flank to the right groin, simulating ureteral pain. There was a marked hyperalgesia in the same area. The nerve was resected, resulting in a complete cure. Microscopic examination revealed evidence of previous severe trauma to the nerve. The case is presented as an example of a possible complication of operations on the kidney and for consideration in the differential diagnosis of ureteral pain in patients who have had a previous operation in this region.

SALINE IRRIGATIONS IN GONORRHEA

The success attending saline irrigation of wounds suggested to Clarke that a similar process might be effective in gonorrhea. Astringents like potassium permanganate are apt to close the crypts in the urethra and thus prevent the entrance of the irrigating solu-

tion to infected areas: He treated sixty cases at the British Military Hospital, Rangoon—thirty with saline irrigations (1 per cent common salt) and thirty with potassium permanganate 1:10,000. The cases were nearly all of a severe and chronic type. Those treated with saline averaged 44 days for recovery, exclusive of two relapses, while the permanganate cases averaged 61 days and eight relapses occurred. The saline treatment is much less expensive than with permanganate, and Clarke regards it as being of proved value.—*The Prescriber*.

ACUTE TUBERCULOUS IRITIS

F. H. Verhoeff, Boston (*Journal A. M. A.*, Aug. 23, 1930), relates the case of a man, aged 64, with retinitis pigmentosa, blind for more than twenty years, who developed in one eye acute fibrinous iritis clinically similar to acute "rheumatic" iritis. Roentgen examination of the chest showed marked evidences of old pulmonary tuberculosis. There was no cough or elevation of temperature. On account of pain the eye was removed about five days after the onset of the subjective symptoms. Microscopic examination showed small recent tuberculous foci in the iris which had given rise to a fibrinous exudate in the pupil. The acute reaction may have been due to an allergic condition of the patient toward tuberculous toxins. Since the case does not conform to any type of tuberculous iritis hitherto recognized, it suggests that some, possibly many, cases of supposed "rheumatic" iritis are due to tuberculosis.

THE HOSTS OF TULAREMIA

Tularemia is principally a disease of wild life. In conserving wild life are we in danger of enlarging the reservoir of infection from which human cases are derived? The suggestion was made recently by Dr. R. G. Green of the University of Minnesota. He points out that with a single exception all recorded human cases appear to have been derived from infected animals or intermediate insect hosts. Infection is not passed ordinarily from man to man even when special precautions are not taken to avoid it. Dr. Green suggests that the frequency of human infection is probably a cyclic phenomenon depending on exacerbations of the disease in the animal reservoir. Until some means of combating the disease at this point is discovered, as for example the destruction of the deer fly and the ticks that act as intermediate hosts, the conservation of wild life is liable to extend the incidence of the disease in man.—*Jour. A. M. A.*, Aug. 30, 1930.

Society Proceedings

ALEXANDER-PULASKI COUNTIES

The Alexander-Pulaski County Medical Society met at the Halliday Hotel January 23. Invited as our guests were the members of the Alexander County Dental Society.

H. A. Moreland, D. D. S., read a paper on "Focal Infection and Tooth Question." The Doctor presented

a very thorough and scientific paper with illustration by numerous lantern slides and x-rays. It is planned to have other meetings with the dentists to study questions of mutual interest.

JAS. S. JOHNSON.

COOK COUNTY

CHICAGO SOCIETY OF INDUSTRIAL MEDICINE AND SURGERY

Meeting February 4, 1931

1. Fractures of the Humerus....William R. Cubbins
2. Report of Five Hundred Consecutive Cases of Fracture of the Humerus in the Wards of the Cook County Hospital.....Carlo Scudari

Discussion

Philip H. Kreuscher Arthur Conley

CHICAGO ROENTGEN SOCIETY

Meeting February 11, 1931

Symposium on Urinary Lesions

Uroselectan.....B. H. Nichols, Cleveland Clinic
PyelographyHerman Kretschmer
Irradiation Treatment of Malignant Urinary Lesions.
.....U. V. Portmann, Cleveland Clinic

Discussants

Robert Herbst C. M. McKenna
Jos. Eisenstadt Roswell Petit
Robert A. Arens

CHICAGO MEDICAL SOCIETY

Joint Meeting with the North Side Branch, Feb. 18, 1931

Fifth Annual Ochsner Memorial Surgical Lecture

"The Present Trend of Blood Vessel Surgery".....

.....R. W. McNealy

CHICAGO MEDICAL SOCIETY

Joint Meeting with the Chicago Tuberculosis Society

February 25, 1931

Clinical Studies of the Immunizing Value of "Natural" Bacterial Antigens. I Pneumococci.....

.....Don C. Sutton

(In Association with Arthur Isaac Kendall, Ph. D., and Albert Rosenblum, M. D.)

DiscussionCharles Elliott

Incidents, Frequency and Diagnosis of Growths of the Mediastinum.....Charles Spencer Williamson

The Diagnosis, Prognosis and Treatment of Tuberculosis in Childhood.....Professor Franz von Groer

Dir. Children's Clinic, University of Lemberg, Poland
Theodore B. Sachs, Visiting Professor

Discussion.....Joseph Brememann and Julius Hess

KANE COUNTY

The Kane County Medical Society held its February meeting at the Elgin State Hospital, through the courtesy of Doctor Charles F. Read, newly appointed Superintendent. Fifty members were present to hear the program by Doctor Carl B. Davis of Chicago on "Cervical Rib" and Doctor George Wiltrakus of the Elgin

State Hospital on "Medical and Surgical Work in a State Hospital."

The Elgin State Hospital staff is now 100 per cent. in its membership in the Kane County Medical Society.

SANGAMON COUNTY

Regular meeting of Sangamon County Medical Society met at the Leland Hotel Thursday evening, February 5.

Dinner at 6 P. M., well attended by local men and visitors from Decatur and Jacksonville.

Very delightful and interesting talk on "Allergy" by Dr. Harry L. Alexander of St. Louis. Discussion by Doctors Herndon, Kelly, Cole, Rosen, Zelle, Rich and Wiley.

Several new members admitted to County Society.

We have had 120 paid up members the past year and are planning on at least 130 in 1931 by making the County Society so active and interesting that our non-members will want to come in.

HOMER P. McNAMARA, M. D.

Marriages

GEORGE R. LEONARD to Mrs. Mary Perkins Burgess, both of Chicago, Dec. 31, 1930.

VIVIEN P. SIEGEL, Collinsville, Ill., to Miss Jessie Little of Edwardsville, Nov. 27, 1930.

HUGH D. STITES to Mrs. Ethel Morrison, both of Aledo, Ill., January 22.

Personals

Dr. Julius H. Hess, Chicago, addressed the Rock Island County Medical Society, February 15, on "Focal Infections of Childhood."

Dr. Harry C. Rolnick was appointed, February 4, as consulting urologic surgeon for the Illinois State Industrial Commission.

Dr. George Milles, among others, addressed the Chicago Pathological Society, February 9, on "Primary Carcinoma of the Jejunum."

Dr. Ralph C. Hamill, Chicago, addressed the Champaign County Medical Society, February 12, on prevention of nervous disorders.

Dr. Clark W. Finnerud, among others, addressed the Chicago Ophthalmological Society, February 16, on "Skin Diseases of the Eyelids."

Dr. Henry Schmitz, professor of gynecology, Loyola School of Medicine, received the gold medal of the Radiological Society of North America for 1930, for achievement in the science

of radiology in its application to diseases of women.

A. McCrea, Ph.D., Detroit, addressed the Chicago Council of Medical Women, February 6, on "Parasitic Fungi of the Skin," and Rosalie M. Parr, Ph.D., "Effects of Germanium and Selenium Compounds on Blood Morphology."

Dr. James H. Hutton, Chicago, addressed the Vermilion County Medical Society, Danville, February 3, on "Endocrine Disorders Occurring in General Medicine," and the DeWitt County Medical Society, Clinton, February 11, on "Diagnosis and Treatment of Common Endocrine Disorders."

Dr. Vilray P. Blair, St. Louis, delivered the seventh Lewis-Linn-McArthur lecture of the Billings Foundation of the Institute of Medicine of Chicago before the institute and the Chicago Surgical Society, February 27, on "Facial Abnormalities, Fancied and Real; the Reaction of the Patient, and Their Attempted Correction."

Dr. Max Thorek recently exhibited some photographic studies at the fifth annual art exhibit of the New York Academy of Medicine.

Doctor R. W. McNealy delivered the Fifth Annual Albert J. Oschner Memorial Address, February 18, at the Joint Meeting of the North Side Branch of the Chicago Medical Society. The subject of the address was "The Present Trend in Blood Vessel Surgery."

Doctor Geza deTakats delivered a series of six lectures at the Post Graduate Course in Surgical Diagnosis of the Universities of Kansas and Oklahoma, from February 9 to February 13. His topics were Pre and Post Operative Administration of Fluids, Simple and Safe Methods in Local Anesthesia, The Treatment of Varicose Veins, Obliterative Vascular Diseases of the Extremities, Diagnosis and Treatment of Diseases of the Pancreas, and Diagnosis and Treatment of Diseases of the Spleen.

News Notes

—A symposium on sterility was conducted before a joint meeting of the Chicago Gynecological and Urological societies, February 26.

—The annual conference of the Chicago Association for Child Study and Parent Education was held at the Palmer House, March 28.

—The Society of Medical History of Chicago

was addressed, February 20, at the Archibald Church Library, Northwestern University, 303 East Chicago Avenue, by Dr. M. Herbert Barker on "Richard Bright and His Contribution to Renal Pathology"; J. Barry Anson, Ph.D., "Thomas Willis and His Contribution to Anatomy," and Dr. Irving S. Cutter, "A Brief Description of Some Source Items in the Church Library."

—The showing of three motion pictures with sound took place, February 11, at St. Luke's Hospital; the pictures are the work of Dr. Harold O. Jones, associate professor of obstetrics and gynecology, Northwestern University Medical School. The titles are "Suspension of the Uterus for Retrodisplacement"; "Salpingectomy and High Fundic Amputation for Residues of Tubal Disease," and "Vaginal Hysterectomy for Uterine Prolapse."

—An institute for lay boards of hospitals and public health nursing organizations was held in Chicago, February 17, under the auspices of the Central Council for Nursing Education, concurrently with the annual congress on medical education, licensure and hospitals. Among the speakers were Carl E. Buck, D.P.H., Detroit, on "Responsibility of the Citizen for Community Health"; Dr. Henry S. Houghton, Iowa City, "The State University and Nursing Education"; Miss Isabel Stewart, of Columbia University, New York, on "The Present Trend in Nursing Education," and Miss Adda Eldredge, Madison, Wis., "Relation of the School of Nursing to the Board of Directors." At a dinner given jointly with the Council on Medical Education and Hospitals of the American Medical Association, Monday evening, February 16, Dr. Henry A. Christian, Boston, spoke on "The Clinic as a Center of Graduate Study."

—Sharp & Dohme announce their success in synthesizing on a manufacturing scale a new intestinal antiseptic with one hundred times the germicidal power of phenol. The new chemical substance is DI-HYRHANOL.

This new synthetic chemical possesses over 100 times the bactericidal power of phenol at body temperature. It destroys the putrefactive flora of the intestinal tract with certainty and regularity. It is non-toxic in therapeutic doses.

—Dr. Roy O. Hawthorne, of Monticello, has received the appointment as managing officer of

the Kankakee State Hospital to fill the vacancy caused by the death of Dr. George S. Edmonson, according to announcement Thursday, February 12, by Rodney H. Brandon, state director of public welfare. Dr. Hawthorne took charge of the hospital on Feb. 15.

Dr. Hawthorne attended Illinois Wesleyan university, Bloomington. He received his doctor's degree from the Northwestern university medical school in 1913, and served his internship in Wesley Memorial hospital in Bloomington. He served as a medical officer during the World War.

Dr. Hawthorne has been practising in Monticello since 1918. He is secretary of the Piatt County Medical society, and a member of the medico-legal committee of the Illinois State Medical society. He is also commander of the 19th district of American Legion.

—The Library of the College of Medicine of the University of Illinois now has a display of early medical Americana, among the items exhibited being a copy of Vol. 1 of the Medical Repository appearing in 1798, this being the first American Medical Journal. There is also a collection of the writings of Benjamin Rush and an autographed copy of a work by Marion Sims. There is a copy of the first medical dictionary compiled by an American and the little book on Digestion by Beaumont. The exhibit includes photographs of many of the men whose names are known to the student of medical history in the United States.

—Following the custom of interspersing the medico-historical exhibits at the library of the College of Medicine of the University of Illinois with collections representing the Avocational interests of various faculty members, the exhibition room of the library is now given over to a collection of some hundred and fifty bird pictures made by Dr. and Mrs. C. I. Reed. Each picture represents some characteristic of the birds represented in this interesting ornithological exhibition.

—At the annual meeting and election of the staff of the American Hospital of Chicago, the following officers were elected: Dr. W. B. Gerhard, president; Dr. A. J. McCarter, vice-president, and Dr. A. R. Hollender, secretary.

A number of additions were made to both the medical and surgical staff.

—The following papers were presented, February 16, before the Chicago Society of Allergy: 1. Hyperesthetic Rhinitis and Asthma Due to Digestive Ferments, Wm. L. Beecher. 2. Resume of Passive Transfer in Allergy, L. E. Markin. 3. Review of Recent Books on Allergy, with Comments, Leon Unger.

—The Chicago Council of Medical Women held their regular monthly meeting at the Medical and Dental Arts Club, March 6, 1931. Program—*Physiotherapy*, A. T. Clopton, M. D., Chief of Reconstruction Service, Edward Hines, Jr., Hospital, Maywood. *Occupational Therapy*, Gertrude Sample, Occupational Director, Edward Hines, Jr. Hospital, Maywood. Discussion, Lena K. Sadler, M. D.

—The regular meeting of the Woman's Auxiliary to the Chicago Medical Society was held March 4, in the club room of the Medical and Dental Arts building.

Dr. Charles E. Humiston, Chicago, member of the Council on Medical Education and Hospitalization of the American Medical Association, spoke on the subject of "Hospital Control."

—Professor Franz von Groer, Director of the Pediatrics Department, University of Lemberg, Poland, is a visiting professor at the University of Illinois College of Medicine. The Theodore B. Sachs Memorial Fellowship has been established at the University of Illinois College of Medicine through a grant from the Chicago Tuberculosis Institute. Professor von Groer is giving the following clinics and lectures in Chicago:

February 14—Pediatrics Clinic, Cook County Hospital.

February 16—Lecture on the Scarlet Fever Problem, Northwestern University.

February 17—Lecture on the Hygiogenesis of Infectious Diseases, Chicago Pediatrics Society.

February 17—Clinic, Cook County Hospital.

February 19—Pediatrics Clinic, Norwegian American Hospital.

February 21—Pediatrics Clinic, Cook County Hospital.

February 22—Pediatrics Conference, Research & Educational Hospital.

February 24—Lecture on Congenital Syphilis, Mercy Hospital.

February 25—Lecture on Measles, University of Illinois, College of Medicine.

February 25—Lecture on the Esophylactic Importance of the Wheal and Its Immunity and Hygiogenesis, Research Hospital (Library).

February 25—(Lecture), Institute of Medicine and the Research Club of the University of Illinois.

February 25—Lecture—Diagnosis, Prognosis and Treatment of Tuberculosis in Childhood, Chicago Medical Society and Chicago Tuberculosis Society.

February 26—Pediatrics Clinic, Cook County Hospital.

March 3—Pediatrics Clinic, Presbyterian Hospital, 9-11 a. m.

March 3—Lecture—Differential Diagnosis of Fever in Children, German Medical Society, 8 p. m.

March 4—Lecture—Diet and Fever, Billings Hospital, 12-1 p. m.

March 4—"Pediatrics and Children's Welfare in Europe," Faculty Meeting, University of Illinois College of Medicine, 5:30 p. m.

March 5—Pediatrics Clinic, Research Hospital, 1-2 p. m.

March 7—Pediatrics Clinic, Cook County Hospital, 10-12.

March 11—Pediatrics Clinic, Cook County Hospital, 11-12.

March 11—Lecture on Tuberculosis and Eye Diseases, Illinois Eye and Ear Infirmary, 8 p. m.

March 14—Pediatrics Clinic, Cook County Hospital, 10-12.

Professor von Groer has lectured at the Mt. Sinai and Fifth Avenue Hospitals in New York City. Following his stay at the University of Illinois College of Medicine, he will lecture and hold clinics at the University of Michigan, University of Cincinnati, Western Reserve University in Cleveland, and the University of Iowa. He will then make a tour of the west where he will lecture at the University of Colorado in Denver, at Los Angeles Academy of Medicine, the San Francisco Academy of Medicine, the Portland Academy of Medicine, and the Seattle and Spokane Medical Societies.

Professor von Groer was formerly connected with the University of Breslau and for many years was associated with Professor von Pirquet and the Pediatrics Department of the University of Vienna. Professor von Groer was also

instrumental in organizing the Pediatrics Department in Yugoslavia, and was appointed by President Hoover on the Child Welfare Commission in Poland.

Deaths

CORYDON DE KALB BUNDY, Kankakee, Ill.; College of Physicians and Surgeons, Chicago, 1902; aged 58; died, January 12, in Newport Ritchey, Fla., of myocarditis and hypertension.

FREDERICK A. GOETZ, Chicago; Universitat, Leipzig, Saxony, Germany, 1878; aged 77; died, Oct. 22, 1930, of cerebral hemorrhage.

LESTER ALOYSIUS HALLORAN, Chicago; St. Louis University School of Medicine, 1919; aged 39; died, January 23, of pulmonary abscess.

ERNST JENTZSCH, Chicago; Bennett College of Eclectic Medicine and Surgery, 1901; aged 61; died, February 3, of myocarditis, chronic nephritis and diabetes mellitus.

GEORGE JOHN LABEN, Chicago; College of Physicians and Surgeons, Chicago, 1900; formerly served in the Indian Service; aged 62; died, January 14, of carcinoma of the urinary bladder.

ALBERT F. MESSNER, Chicago; Hahnemann Medical College and Hospital, Chicago, 1890; aged 65; died, January 18, of chronic myocarditis.

FRANK DONALDSON MOORE, Chicago; College of Physicians and Surgeons, Chicago, 1899; formerly associate professor of surgery at his alma mater; member of the American College of Surgeons; vice president and on the staffs of the Garfield Park and Frances Willard hospitals and on the staff of the Mother Cabrini Memorial Hospital; aged 60; died, January 28, of heart disease.

WILLIS J. PEAK, Oakland, Ill.; St. Louis Medical College, 1861; Civil War veteran; aged 93; died, January 17, of chronic interstitial nephritis.

MAXIMILIAN PINCUS, Chicago; Jenner Medical College, Chicago, 1908; aged 61; died, January 23, of chronic myocarditis.

JOHN WILLIAM RUST, Willow Springs, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1897; aged 60; died, January 13.

JOSEPH C. SHAFER, Noble, Ill.; Eclectic Medical Institute, Cincinnati, 1907; aged 50; died, January 19, of pneumonia.

FRANCES R. SHERWOOD, Oak Park, Ill.; Rush Medical College, Chicago, 1888; at one time professor of surgery at the University of Illinois College of Medicine; formerly on the staff of the Cook County Hospital; aged 68; died, February 7, of arteriosclerosis and carcinoma of the rectum.

GEORGE FREDERIC WENTCH, Earlville, Ill.; State University of Iowa College of Homeopathic Medicine, Iowa City, 1896; aged 72; died, Dec. 40, 1930, in the East Side Hospital, Waterman, of carcinoma.

Book Reviews

CANCER. ITS ORIGIN, ITS DEVELOPMENT AND ITS SELF PERPETUATION. By Willy Meyer, M. D. New York. Paul Hoeber, Inc. 1931. Price, \$7.50.

This work deals with cancer as an ordinary lawful reaction of the tissues to certain systemic and local morbid conditions. The author denies the autonomy of cancer. He has searched the probable unity in character of all types of new growth. He recognizes only one ailment, chronic irritation, as the potential source of all of them.

MODERN METHODS OF TREATMENT. By Logan Clendenning, M. D. Fourth edition. St. Louis. The C. V. Mosby Company. 1931. Price, \$10.00.

In this work the author planned to furnish an outline of all the methods of treatment used in internal medicine. The author described each method of procedure clearly and minutely that a person who has never seen it performed could do it from the description.

This edition has been carefully revised. The general plan and purpose of the book has not been changed.

OPERATIVE OBSTETRICS ON THE MANIKIN. By Charles B. Reed, M. D. With two hundred and fifty illustrations. Philadelphia. P. Blackiston's Sons & Company, Inc. Price, \$4.00.

This work is intended for students and practitioners. This work the first in English, begins with operations which can be practiced on the manikin. These are taken up in detail, commencing with the simplest and gradually advancing to the more difficult. The various steps in each maneuver are explained minutely in the text, and illustrated by numerous diagrams and pictures which show how the operation is accomplished and also what errors should be avoided to secure the best results. The reasons for each act are given, as well as the complication and evils that follow false or imperfect methods.

THE RATE OF HEALING OF ELECTROSURGICAL WOUNDS AS EXPRESSED BY TENSILE STRENGTH

John D. Ellis, Chicago (Journal A. M. A., Jan. 3, 1931), states that only 60 per cent of the electrically produced skin wounds showed primary union in comparison with 97.5 per cent of primary union in the control scalpel wounds, which indicates the futility of expecting primary skin healing in a fair percentage of electrical wounds. When union did occur, the wound was somewhat weaker than in corresponding scalpel wounds, and in the case of heavy dehydration did not attain a strength equal to the scalpel wound in twenty-one days. The stomach and muscle incisions electrically produced show the same percentage of primary union as the scalpel wounds. The electrically produced stomach wounds are notably weaker at about the midpoint of healing. The electrically produced muscle wounds are of almost equal strength with the scalpel wounds through the entire healing period. While these

observations do not argue against the employment of the electrosurgical knife for making surgical incisions when clear-cut indications for its use present themselves, this method cannot be considered as a practical substitute for the scalpel for routine use.

TRAUMA AND DEMENTIA PARALYTICA

Joseph V. Klauder, Philadelphia, and Harry C. Solomon, Boston (Journal A. M. A., Jan. 3, 1931), discuss the etiology of dementia paralytica, the onset and evolution of early dementia paralytica, trauma in determining the localization of syphilitic lesions in human syphilis, trauma in determining the localization of syphilitic lesions experimentally in rabbit syphilis, statistical studies regarding the relation of trauma to dementia paralytica, the rôle of trauma in causation of dementia paralytica, the limits of the time elapsing between the trauma and the onset of dementia paralytica which would logically incriminate trauma as playing an etiologic rôle, and the medicolegal status of the relation of trauma to dementia paralytica. The authors urge that each case must be considered on its own merits and the physician must try to evaluate (1) the effect of the trauma on the intracranial contents, (2) the meaning of symptoms during the intercalary period, and (3) the probable modification of the patient's usefulness and longevity.

JAMAICA GINGER PARALYSIS

The autopsy reports of three patients with jamaica ginger paralysis dying of other causes are presented by Raymond H. Goodale and Margaret B. Humphreys, Worcester, Mass. (Journal A. M. A., Jan. 3, 1931). A study of the nerves shows an acute inflammation of one segment of the cauda equina in one case, and myelin sheath and axis cylinder degeneration of the radial, sciatic external popliteal, anterior tibial and posterior tibial nerves in all three cases. The degeneration is found as high as the gluteal fold in the sciatic nerve but not in the anterior roots of the lumbar cord. These observations are consistent with the observations in a follow-up clinic in which it was found that all patients showed marked improvement of wrist and finger motion and little or no improvement of foot motion from five to six months after the onset of paralysis.

ACUTE BENIGN INFECTIOUS MYELITIS

Attention is called by Irving J. Sands, Brooklyn (Journal A. M. A., Jan. 3, 1931), to a recoverable type of myelitis. Following infection of the upper respiratory channels there occurs, in young persons, paralysis of the lower extremities with loss of deep tendon reflexes, loss of abdominal reflexes, retention of urine, and subjective as well as objective sensory disorders segmental in distribution. There is slight leukocytosis. The spinal fluid shows an increase in protein and relatively little cellular reaction. Recovery is apparently rapid and complete. A relationship between this disease and epidemic encephalitis is suggested.

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CONTENTS

Editorials (See Extended Table for Contents for Titles) . . 241

ORIGINAL ARTICLES

Undulant Fever. *Lloyd Arnold, M. D., Chicago* 276

Splinting the Lung. *Herman L. Horwitz, M. D., and Otto C. Schlack, M. D., Chicago* 280

Job of Editing a Medical Journal. *Charles J. Whalen, M. D., Chicago* 285

Health Appraisal of Apparently Healthy Persons. *John M. Dodson, M. D., Chicago* 291

Pitkin's Spinal Anesthesia. *A. Merrill Miller, M. D., Danville, Ill.* 300

Obesity and Leanness. *Hugo R. Rony, M. D., Chicago* . . 302

Compensation for Injuries of the Eye. *Sanford R. Gifford, M. D., Chicago* 315

Circumcision. *Frederick C. Schurmeier, M. D., Elgin, Ill.* 319

Sodium Amytal as an Anesthetic. *Arthur E. Joslyn, M. D., Maywood, Ill.* 320

EDITORIALS

Increasing Importance of Hospitals. 241

Lay Public and Medicine's Contributions 244

Why More Dispensaries in Chicago? 245

Dr. Mayo Criticises Hospitals 245

Membership vs. Fellowship in A. M. A. 245

(Continued on Page 10)

EIGHTY-FIRST ANNUAL MEETING AT EAST ST. LOUIS, MAY 5, 6, 7, 1931

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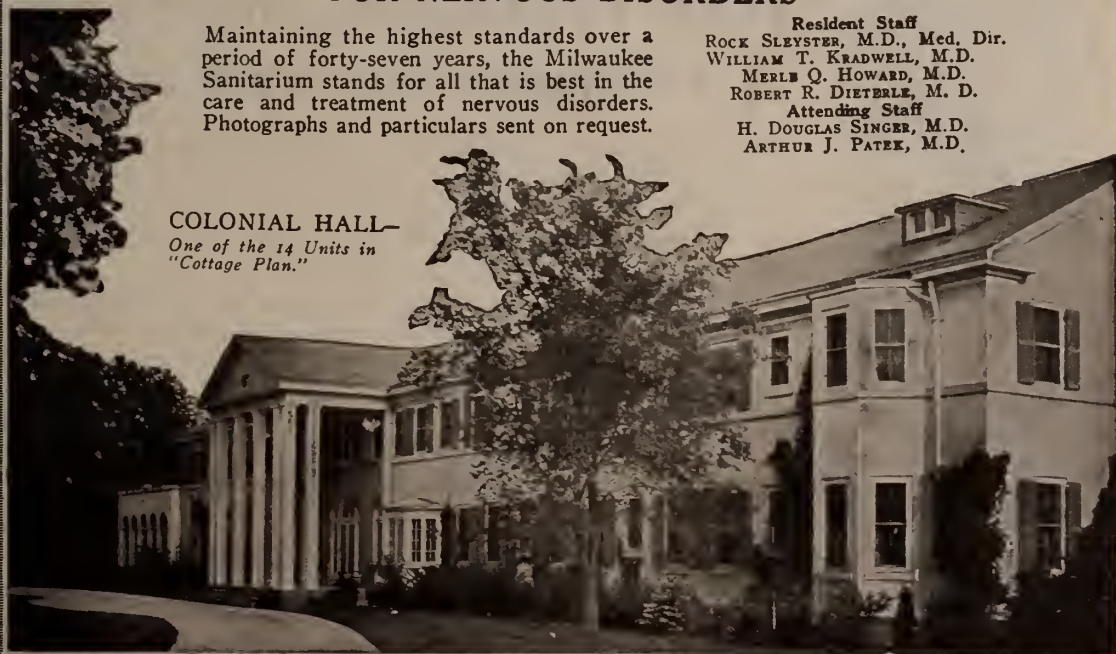
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Editorials

THE INCREASING IMPORTANCE OF HOSPITALS. HOSPITALS SHOULD BE CONTROLLED BY MEDICAL MEN

Traditional and fallacious human tendency to attempt to manipulate the whole by the part finds fresh expression and additional cause for deprecation in the attitude of the general public towards the comparative importance of the quantities involved in the affiliation between the medical profession and the modern hospital system. It is, too, a shining target for the destructive arrows of state medicine.

Interdependence between the profession and these admirable institutions, the great hospitals, is as closely knit as that between world trade and international finance. Commerce can be carried on without these standards, but with impaired efficiency and ease. Development of modern hospitals has made of these institutions an integral unit in the science of health and medicine. Yet after all they are only a unit and not the whole. Interdependent though they be, it is the medical profession that creates, upholds and builds the hospital, and not the hospital the medical profession. The degree and quality of this relationship must not be misconstrued. Once again, it must be remembered "the tail cannot wag the dog."

It must be admitted that to the impenetrable eye, both among the educated and the uneducated, the fine, modern hospital possesses qualities far more spectacular than does the grave and customarily over worked and over burdened man of science. The modern hospital in its fittings appeals to a certain sybaritic trait in the sick as well as to his peace of mind. There is a feeling that "all's well," or at least, as well as it can be—in these hygean palaces. Which is quite as it should be. Immaculately garbed nurses, internes and maintenance corps and buildings; perfect equipment and ultra efficiency make of

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Contributors will submit all copy for publication typewritten on standard size paper and double spaced. Copy not complying with this rule will be returned, if convenient.

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the modern hospital an elementally essential tool in the hands of the physician. Both as a pedagogic entity in the teaching of medicine and as an almost *sine qua non* in its practice, the hospital stands today as a tribute both to the physician and his patient.

After all, however, the hospital is merely a tool and a tribute and not inherently the medical profession itself. Perhaps it is not in error to say that the mother profession is the soul and the brains of the healing arts and sciences, and the great and wonderful hospitals, these splendid machines, a wonderful and perfect body in which to house them.

A man ruled by his body alone does not contribute to the mortal state the best of the humanities. The analogy is obvious even if not exactly co-incident.

Since hospitals are an aid to the physician and a mere auxiliary to the practice of medicine, which after all, is the *raison d'être* for the foundation of the hospitals, rather than in the converse reading it is essential that the doctors shall control the hospitals rather than have these institutions, marvels though these be, hamper the physician either through federal, state or lay directorate control or subsidization. All three of these agencies are entering into increasing competition with professional and private hospitals. Unless such institutions are controlled by the physicians themselves there are reefs ahead. Admitting that the economic situation is such that the upkeep of a hospital, thanks to the prices paid for general labor, both skilled and unskilled, make hospital efficiency from a maintenance standpoint as expensive as that of a high-priced hotel, even this is no excuse. The economics of the institution while in the hands of economic experts should be ever subordinate to the authority of the medical profession.

Otherwise chaos will result. Science and medical efficiency must needs fall by the wayside when forced to play handmaid to the cook and the cash box. Science for Science sake, and the world well lost, is the sesame for progress in the healing art.

Under date of March 28, 1931, the Journal A. M. A. publishes an editorial for which it deserves the congratulations of every worth while

member of the profession. Under the title "The Increasing Importance of Hospitals" and based on the tenth annual compilation of statistics on hospital service in the U. S., this editorial emphasizes among other saliences these facts:

HOSPITALS AND MEDICAL EDUCATION

"There are in the United States 76 acceptable medical schools, but there are 316 teaching hospitals with a total bed capacity of 135,548, affiliated with the 76 medical schools for teaching purposes and make the high quality of the clinical service in these schools possible.

"After the completion of four years of study in the medical schools, 664 approved hospitals, with a total bed capacity of 201,974, wait to receive the army of medical students, with an offer of 5,584 internships for their practical training in the care of the sick. And to those who, now trained in general medicine, desire to pursue some special branch of medical study, another group of 349 hospitals, with a total bed capacity of 218,495, offer 2,069 approved residencies in the various specialties.

"Adequate statistics are not available regarding the large number of hospitals offering postgraduate courses—courses designed to keep efficient the well trained army of practitioners whose contacts with medical schools are now matters more of past than of current history. The clinics held singly rather than in courses constitute another unknown but important factor in this phase of hospital service.

INCREASING USE OF HOSPITALS BY PHYSICIANS

"The practice of medicine also is being transferred to hospitals in a continuously increasing degree. In 1909 there were in the United States 4,359 reasonably acceptable hospitals; in 1930 there were 6,719, a numerical increase of 2,360, or 54.1 per cent. But the bed capacity of these hospitals rose during the same period from 421,065 to 955,869, a capacity increase of 534,804, or 127 per cent.

"Approximately two-thirds of the active physicians of the United States are now connected with hospitals. In 1929 there were 152,503 licensed physicians, about 10,000 of whom were not in practice. Of the 142,500 who were in practice, 98,491 were connected with hospitals as staff members, superintendents, residents and interns. The physicians of ten or more years ago were not so connected to any such extent. Indeed, the increased use of hospitals has proceeded with and has been largely due to the increase in connection of physicians with the hospitals. If the present trend continues, the number of active physicians not connected with hospitals will be infinitesimal.

"The greatest number of those not yet participating in hospital practice are among the general practitioners. Hospital connection has become a practical necessity to the specialist and has increased with the growth

of specialization. In 1929 the number of practitioners in the various specialties were:

Internists	3,378	Orthopedists	810
Surgeons	12,939	Ophthalmologists	1,343
Neuropsychiatrists	1,973	Otorhinolaryngologists..	6,805
Radiologists	1,653	Specialists in tuberculo-	
Dermatologists	896	sis	984
Pathologists	672	Urologists	2,249
Pediatricians	3,505	Other specialists	1,972
Obstetricians and gynecologists	6,108		

"These practitioners make the hospitals what they are and in turn depend on them for their economic and professional lives. Every specialty therefore has a claim on these hospitals—a logical and undeniable right to a voice in the determination of hospital plans and procedures. The interests of no one specialty are paramount; the solution of hospital problems is the common task of all.

FEDERAL AND STATE HOSPITALS

"Federal and state governments are entering into competition with private agencies in the hospital field to a constantly increasing extent. In 1909 there were 232 state hospitals in the United States; in 1930 there were 581, a numerical increase of 150.4 per cent. In 1909 the bed capacity of state hospitals was 189,049; in 1930 it was 405,309, a capacity increase of 114.3 per cent. In 1909 there were 71 federal hospitals in the continental United States; in 1930 there were 288, a numerical increase of 305.6 per cent. In 1909 the bed capacity of federal hospitals was 8,827; in 1930 it was 63,581, a capacity increase of 620.3 per cent.

"Such strides in the building and enlarging of hospitals by federal and state governments may be interpreted in either of two ways: one may see in it a belated recognition of civic duty in the matter of chronic cases where family financial support fails; or one may view it as a preparatory step in a policy of unlimited expansion whose ultimate goal is state medicine.

"From 1923 to 1930 the number of laboratories in hospitals increased from 3,035 to 4,249. During the same time the number of x-ray departments increased from 2,841 to 4,523. The departments of physical therapy in hospitals numbered 2,091 in 1927 and 2,236 in 1930. And along with the increase in the number of these adjuncts to diagnosis and treatment in hospitals has come increased demand that these departments be under the supervision of medical practitioners who are specially qualified.

GROWTH OF OUTPATIENT SERVICE

"The outpatient service of hospitals has grown steadily in recent years. Indications are that this growth has been influenced more by the tendency to congregate in cities than by the increasing density of population in general. In 1921, 678 hospitals reported that 3,000,163 outpatients made 9,552,123 visit to the outpatient department. In 1929, 1,027 hospitals reported that 6,644,983 outpatients made 19,056,394 visits.

INTERDEPENDENCE OF HOSPITALS AND PHYSICIANS

"The greater the development of such institutions as have been described, the more extensive their use by the people, the more active must become the interest of the physician and in their direction and control. It seems so simple to leave the economics, the construction, the administration of hospitals to lay boards and superintendents that far too many physicians are content simply to have the hospital as a work place ready for them and their patients. Thus the attitude has grown among many philanthropists and hospital workers that the physician is the recipient of these facilities from the public and must therefore be under their direction. Nothing could be more fallacious. The doctors make the hospital. Without them it necessarily falls. Its merits are equivalent to their merits and cannot surpass them. This fact should be realized by lay directors, who should take their medical staffs into consultation on every matter affecting the welfare of the institution and be guided by them in every scientific problem."

In many instances control of hospital activities goes hand in hand with control of medicine. For already many institutions dictate how the physician should conduct himself with regard to his practice, his hospital affiliations and his public. In this respect probably the greatest injury is inflicted through the inflexibility of any system designed permanently to meet the needs of a few of the profession in certain localities. But needs vary as do localities. Policy, management and control of all hospitals should be in the hands of local physicians. Let these men rule the hospital, rather than tolerate hospitals ruling the physicians, is an axiom that brooks no evasions.

Activities of all hospitals should be directed towards their scientific inherencies. Under no conditions should a lay board of control ballyhoo the public in an attempt to meet hospital needs. Such matters should rest in the hands of a general board of physicians. Indiscriminate philanthropy with self-aggrandizement as a background, has admitted persons on hospital boards who have absolutely no right to such membership. The practice of the profession is unnecessarily clouded by philanthropies that strain the quality of mercy and throw blinding dust into the eyes of scientific progress.

Equally reprehensible and serving practically as a Siamese twin with this handicapping philanthropy is another phase of serious and dangerous import. That is lay influence in the control

and management of hospitals. Now hospitals are the scientific workshop of the medical profession, yet lay trustees can outline the policies governing the hospitals. Such rules require visiting physicians to submit to regulations made by lay superintendents or head nurses. These rules and regulations may be contrary, very often, to what is considered by physicians as best suited to the welfare of patients whom they attend in these institutions.

Hospitals in communities are serviceable only through their staffs of attending physicians and surgeons. These staffs send in the patients. Without patients hospitals would have no reason for existence. Lay trustees recognize staffs by granting these men the dubiously high honor of selecting from among themselves executive bodies which have the privilege of carrying medical difficulties to the trustees, lull these staffs erroneously into a feeling that often all staff doctors are integral factors in the management of hospital affairs.

Lay control of hospitals has introduced a new feature into the field of medical practice and a sad one. Some hospitals are practicing medicine as a business. These hospitals are hiring physicians, charging patients for professional advice and for treatments by these physicians, collecting the fees and entering such moneys on their books as revenue received. By this practice hospitals are actually competing with their staff members. Obviously there are possibilities dangerous to both physicians and hospitals incident to this lay advance into the field of medical practice.

Which shall it be, hospitals handled by medical men who are skilled in public health, or hospitals run by bankers, skilled in public wealth?

THE LAY PUBLIC BOTH PRIVATELY AND COLLECTIVELY IS TAKING ADVANTAGE OF MEDICINE'S CONTRIBUTIONS

The lay public, both privately and collectively and from both selfish and altruistic viewpoints, is taking advantage of medicine's contributions. Private citizens and politicians are insisting that medicine be socialized. Life, health, accident and industrial insurance companies are shaping many of their policies on medicine's discoveries. The menace in this respect is manifest in the

employment of large numbers of medical men in these industries and in health movements who are being subordinated gradually but surely to a position that is merely that of technicians.

Socialization of medicine means the subjection by legislative control and political manipulation, of the medical profession in a system of state medicine which includes any movement which would compel physicians to practice on terms dictated by lay people. In medical education there is also a dangerous trend of the times. Great universities and large foundations, through lay board control, regulate the placement of medical schools, the adoption of curriculums, and dictate the selection and compensation of professors.

A menace in its embryonal stage is the organization of lay institutions which practice medicine. Doctors in these organizations occupy a similar position to employes of life, health, accident and industrial insurance companies, being mere employes who carry out the policies of lay directors.

Another phase of serious and dangerous in-herency is the lay influence in the control and management of hospitals. Hospitals are the workshops of the medical profession yet lay trustees outline the policies governing the hospitals. These require visiting physicians often to submit to rules and regulations made by lay superintendents or head nurses, even though these rules and regulations may be contrary to what is considered by physicians as best suited to the welfare of patients.

Hospitals in communities are serviceable only through their staffs of attending physicians and surgeons. These staffs send in the patients without which hospitals would have no reason for existence. Lay trustees recognize dependence on staffs and grant the high (?) honor of selecting from among themselves executive bodies which have the privilege of carrying medical difficulties to the trustees. In this way the staffs are lulled into a feeling that they are integral factors in the management of hospital affairs.

Lay control of hospitals has introduced a new feature into the field of medical practice. Some hospitals are practicing medicine as a business. These hospitals are hiring physicians, charging patients for professional advice and treatments by these physicians, collecting the fees and enter-

ing them on their books as revenue received. By this practice hospitals are actually competing with their staff members. Obviously there are possibilities dangerous to both physicians and hospitals incident to this lay advance into the field of medical practice.

WHY MORE DISPENSARIES IN CHICAGO THE MEDICAL PROFESSION SHOULD TAKE THE LEAD IN ITS OWN HOUSEHOLD AFFAIRS

Not so long since the Northwest Branch of the Chicago Medical Society successfully opposed the establishment of another "free" dispensary in an outlying hospital.

There are only two legitimate reasons for the "free" dispensary.

One concerns the establishment of a purely charitable organization for the ambulatory treatment of indigent patients. Such a dispensary may be wholly independent, may be attached to a hospital or may be associated with social centers. In America the expenses are ostensibly covered by private charity—actually, the physicians contribute 80 per cent. In Europe such free dispensaries may be State supported—the physicians at least receive remuneration.

The other concerns the dispensary ostensibly established to develop material for clinical teaching. While limited to indigent patients, the sole and only legitimate object is the teaching of medicine—not charity. Such dispensaries are not primarily for the benefit of the patient. They are perfectly proper instruments of medical instruction. Not infrequently there appears to be a tendency to confuse the two distinct fields.

The dispensary of the medical school that is used for teaching must grow with the needs of its teaching requirements. This means that the clinical material at its disposal should be used to its fullest extent—that the student himself shall do the work. There should be no sentimental confusion in this matter.

Granted these premises, the medical profession should carefully control the development of dispensaries. The pressing and necessary teaching needs of medical schools should be met as far as possible through the use of public charity hospitals.

While the present interest of the Chicago Medical profession in this question is without

doubt the product of economic pressure, the larger problem involved in the proper guidance of the growth of Chicago's great medical possibilities deserve equal study and consideration. The two are inseparably connected.

The tax payer is beginning to be a bit weary of unnecessarily wasteful official maladministration and lack of co-ordination—the people are beginning to demand some "system" in public affairs as well as in the conduct of chain stores. It might be well for the medical profession to take the lead at least in its own household affairs.

DOCTOR MAYO CRITICISES HOSPITALS

Dr. W. J. Mayo, surgeon and chief of the staff at the Mayo Clinic of Rochester, Minn., recently adversely criticised hospitals in addressing the 12th annual hospital standardization conference which prefaces the clinical congress of American College of Surgeons.

Dr. Mayo charged the hospitals with too much salesmanship and too little humanity.

Supersalesmanship in management of some hospitals often resulted, he said, in the patient being placed in surroundings which, however they might appeal to his esthetic sense, were above his means.

"My own experience has been that patients, in a well-planned, even moderate degree of privacy, on the whole will make a quicker recovery than in a private room with two attentive nurses who unobtrusively in caring for the physical needs and increasing the happiness of the patient, may suggest a mental state in which the diseased condition is exaggerated sympathetically," he said.

Dr. Mayo defended the trained nurse, declaring that at present her fine training was wasted in scrubbing floors, making beds, giving patients baths and other tasks a hospital maid could be trained to do in six months.

THE DIFFERENCE BETWEEN MEMBERSHIP AND FELLOWSHIP IN THE A. M. A.

From time to time we find that many of our members are confused as to the difference between Membership and Fellowship in the American Medical Association.

The following is therefore published for the information of our members:

ONCE MORE: MEMBERSHIP-FELLOWSHIP

Every member in good standing in any constituent state medical association, whose name is reported to the secretary of the American Medical Association for enrollment, is a member of the American Medical Association. No *member* of the American Medical Association is called on, as such, to pay any dues or to contribute financially to the Association.

Every member of the American Medical Association in good standing is eligible for *Fellowship*. To qualify as a Fellow, a member in good standing has only to make formal application for that relation and to subscribe for the Journal. Fellowship dues and subscription to the Journal are both included in the one annual payment of \$5, which is the cost of the Journal to subscribers who are not Fellows.

None but Fellows are eligible for election as officers; none but Fellows can serve as members of the House of Delegates; none but Fellows can register at the annual sessions of the Association or participate in the work of its scientific sections.

On June 1, 1930, there were 99,181 names on the membership roll, 65,419 of which were duly listed on the Fellowship roster.

Members of state medical associations pay dues to those bodies, but they pay nothing to the American Medical Association. *Fellows* pay dues and subscriptions to the Journal in the sum of \$7 a year, which has nothing to do with county or state dues.

UNUSUAL OPPORTUNITY FOR POST-GRADUATE STUDY IN FRANCE DURING JUNE AND JULY, 1931

POST-GRADUATE COURSES, DELIVERED IN THE
ENGLISH LANGUAGE IN THE LEADING HOSPITALS OF PARIS (FRANCE), DURING
THE SUMMER OF 1931

The Faculty of Medicine of Paris (the Medical School of the University) announces that during June and July, 1931, a comprehensive series of post-graduate courses will be presented. The enterprise is conducted under the auspices of the Association for the Development of Medi-

cal Relations (the "A. D. R. M.") a commission sponsored by the French Government.

The work will be presented in the English language. Clinics, lectures and demonstrations will be conducted in the great hospitals of Paris, on a wide variety of topics, by the most eminent French clinicians. A nominal fee will be charged for each course. Upon the completion of each course, the student who qualifies will receive a certificate covering the work, signed by the professor in charge.

Detailed information may be secured by addressing direct, Professeur E. Hartmann, President, "A. D. R. M.," Faculty of Medicine of Paris, 12 Rue de L'Ecole de Medicine, Paris (6e), or in the United States, Doctor Frank Smithies, 920 North Michigan Avenue, Chicago, Illinois.

THE 1931 ANNUAL MEETING

The Annual Meeting is the Member's own meeting, and as the time for the 1931 meeting grows near, the members of the Illinois State Medical Society should be planning to attend the East St. Louis Meeting. Special attention should be called to the unusually attractive program arranged for Tuesday afternoon, May 5, 1931. Six Nationally known speakers will appear before a Joint session of the Sections on Medicine, Surgery, Public Health and Hygiene, and Radiology. Each speaker will refrain from using technical terms, and make his talk of particular interest to all physicians, regardless of their professional inclinations.

This interesting "guest session" will begin at 1:00 o'clock, Tuesday afternoon, and continue through the afternoon. A wide range of subjects have been selected so that they will appeal to all physicians.

The Secretaries' Conference will be held at 10:00 A. M., Tuesday, and it is hoped that all of the Secretaries will be present at this most important meeting.

The Oration in Medicine will be delivered by W. W. Duke of Kansas City, on his favorite subject of "Allergy." Dr. Evarts Graham, Professor of Surgery, Washington University School of Medicine, St. Louis, will deliver the Oration in Surgery. At the General Meeting on Wednesday afternoon, Col. Louis H. Bauer, former Medical Director, Bureau of Aeronautics, De-

partment of Commerce, will talk on "Aviation Medicine." This will be of interest to all physicians present at the meeting, and particularly interesting to the Examiners of the Bureau of Aeronautics. The General opening meeting on Tuesday evening will begin at 7:30, and the principal speaker will be Dr. Richard Sutton of Kansas City, one of the world's greatest big game hunters. Dr. Sutton will give an illustrated talk on "The Long Trek," describing and picturing big game hunts in Africa. This meeting is open to the public, and should be well attended. The General Meetings and four of the Section Meetings will be held in the large AINAD SHRINE TEMPLE. The President's Dinner will be held in the Knights of Columbus Building, and the program for the dinner has been carefully arranged, and will appeal to all present. This interesting function should be well attended, in honor to our President, Dr. William D. Chapman, and to our Past-Presidents, who will be guests of honors. There will be no speeches, but good entertainment.

The exhibits, both commercial and scientific, will be housed in the Exhibition Hall of the Shrine Temple. These will be of great interest to all physicians at the meeting. The Scientific Exhibits this year will be more extensive and more interesting than those shown at previous meetings. Much valuable and highly interesting data will be presented and there will be many attendants who are thoroughly conversant with the subject displayed, to increase the interest.

The 1931 Annual Meeting has been well planned. The East St. Louis Committee has done everything possible to make the meeting a successful one, and each of the Sections has arranged a highly interesting program.

A short synopsis of the papers to be presented is included in the program this year, and will be of interest to all who read it, as they will know the nature of each presentation.

The Exhibit List printed in this JOURNAL is not complete, owing to the fact that the official program is printed earlier this year than usual, but a complete list will be available later. The Meetings of the House of Delegates should be attended by the Delegates selected from each component Society. Every Society is entitled to one or more delegates, according to the membership of the Society. Each Society, therefore,

is entitled to a voice in the Transactions of the House of Delegates. Be sure that your delegates attend the meeting, and then after the meeting have them report back to your Society, so that every member of the Illinois State Medical Society will know what the House of Delegates does for the improvement of Medical Conditions of our State. Hotel reservations can be made in East St. Louis by addressing the Chairman of the Committee, Dr. J. J. Donahue, East St. Louis. Those desiring to play golf may do so by arranging with the golf committee on reaching East St. Louis.

Application has been made to the Western Passenger Association for a reduced fare for those traveling by train, on the certificate plan. When you purchase a railroad ticket to the meeting, buy a one way ticket, and ask for a convention certificate. The certificate must be deposited, after it is signed, at the registration desk. When the required number of certificates have been received, they will be validated, and will entitle the holder to purchase his return ticket at one-half of the regular fare. All hard roads running South will lead to East St. Louis, and special arrangements have been made for parking spaces for all visitors at the meeting.

Mark the dates on your calendar, May 5, 6 and 7, 1931. Plan to attend the meeting, and you will be well repaid.

TO OUR EXHIBITORS

The Illinois State Medical Society has endeavored to arrange everything in connection with the East St. Louis Meeting to suit your convenience, and to the best advantage. The McMahon Transfer Company, East St. Louis, has been designated as the official concern to receive your exhibit materials, to keep them until Monday, May 4, and place them on the floor of the Exhibition Hall that morning. After the meeting, they will take care of the billing and returning of the exhibits according to your instructions.

The Exhibition Hall will open at 8:00 A. M. and close at 6:00 P. M. each day of the meeting. All exhibits should be fully arranged by Monday evening, May 4. Uniform booths will be ready for your exhibits. Tables and chairs are available. If you desire special wiring, or carpenter work, same can be easily obtained in

the building. Special furniture can be rented at a nominal rate, if same is desired.

Every precaution will be taken to protect your exhibit, after the hall is closed each evening. Night watchmen will be present during the night and the room will be locked.

Opportunity will be given all who attend the meeting to visit the exhibits. Many highly interesting scientific exhibits will be shown to attract more visitors to the hall.

The Illinois State Medical Society is always careful in the selection of their exhibitors, and is anxious to aid in every way possible to make your exhibit a successful one.

Representatives of the Society and members of the committee on exhibits will be present during the meeting to give every aid within their power.

You will all be interested in hearing the illustrated lecture given by Dr. Sutton at the opening meeting on Tuesday evening on "The Long Trek." Dr. Sutton is one of America's greatest big game hunters, and his collection of slides which will be shown is one of the best in existence. You will also be invited to attend the interesting meeting sponsored by the St. Clair Medical Society after the opening meeting, and you will enjoy the entertainment immensely.

TO THE MEMBERS OF THE ILLINOIS MEDICAL SOCIETY

As President of the St. Clair County Medical Society, it is a pleasure to extend an official and most cordial invitation to attend the Eighty-first Annual Meeting here in East St. Louis, Illinois, on May 5, 6 and 7.

Everything that a perfect host could do will be well exemplified here during this meeting, and a real determined effort should be made to attend it.

It is the first time within twenty-five years that the Southern part of the State has been honored by this convention, and we feel the responsibility of making it bigger and better than ever.

PLACE—East St. Louis, Illinois.

TIME—May.

DATE—5, 6 and 7.

Sincerely,

Jos. G. Beykirch, President,
St. Clair County Medical Society.

WOMAN'S AUXILIARY TO THE ILLINOIS STATE MEDICAL SOCIETY

PROGRAM FOR STATE MEETING
EAST ST. LOUIS, ILLINOIS, MAY 5-7

Headquarters—Broadview Hotel.

Registration Booth at Doctors' Headquarters,
Ainad Temple, 609 St. Louis Avenue.

Tuesday, May 5

10:00 A. M.—Board Meeting.

10:30 A. M.—Meeting County Presidents with
Pres. Elect, Mrs. T. O. Freeman.

1:30 to 4:00 P. M.—Trip to Forest Park, St.
Louis, visiting Lindbergh's
Trophies and Zoo.

7:00 P. M.—Dinner for Board and County
Presidents.

8:00 P. M.—Joint Meeting, Ainad Temple. Of-
ficial Reception followed by a
lecture on "Travels in Africa."

Wednesday, May 6

9:00 A. M.—Open meeting for all members and
guests.

1:00 P. M.—Luncheon St. Clair County Club,
for all members and guests.

Speakers: Mrs. A. B. McGloth-
lan, St. Joseph, Mo., President-
Elect, Woman's Auxiliary to the
American Medical Association.

Mrs. G. Henry Mundt.

Installation of new President, Mrs.
T. O. Freeman, followed by
bridge or golf.

6:30 P. M.—President's dinner with doctors,
Knights of Columbus, Washing-
ton Pl. and State St.

Thursday, May 7

9:00 A. M.—New Board Meeting with Presi-
dent, Mrs. T. O. Freeman.

SUGGESTIONS OF A CONSTRUCTIVE PRO- GRAM FOR THE WOMAN'S AUXILIARY TO THE ILLINOIS STATE MEDICAL SOCIETY

1—EDUCATIONAL:

1. Exercise franchise and influence in programs of women's clubs.
 - (a) All clubs should have capable physicians' wives on health committees.
 - (b) Secure speakers from Educational Committee, Illinois State Medical Society, 185 North Wabash Avenue, to deliver health addresses.
 - (c) Prevent food and health propagandists of every kind from appearing before clubs.

Keep off quacks and faddists with their misleading propaganda.

- (d) *Study* preventive medicine — vaccination, diphtheria prevention, typhoid inoculation, the value of animal experimentation in order to combat self-opinionated advice from club sisters.
 - (e) Subscribe for Hygeia and have same in club reading rooms and in public libraries.
2. Cooperate with organizations:
 - (a) Parent Teacher Associations—recommend pre-school examinations be given in physicians' offices.
 - (b) Nurses' associations.
 - (c) Workingmen's associations.
 3. Guide the press:
 - (a) Secure publication of health articles (Educational Committee have hundreds of interesting articles on file.)
 - (b) Try to suppress untruths and fallacies concerning preventive medicine as published in women's magazines, popular monthly magazines and especially in church organs.
 4. Urge periodic health examinations:
 - (a) Set the example yourself.
 - (b) Urge your husband to take more interest in physical examinations.

II—CIVIC:

1. Keep up with community interests: (That is, be informed.)
 - (a) Sanitation.
 - (b) Water supply.
 - (c) Food control. (Dirt, flies, adulteration.)
 - (d) Milk supplies. (Constant inspection, pasteurization, certified milk.)
 - (e) Clean alleys—garbage disposal.
 - (f) Noise and smoke abatement.
 - (g) School lunches. Supervision of lunch rooms and confectionery rooms near schools.
 - (h) Vaccination—diphtheria prevention—typhoid inoculation; quarantine regulations.

III—POLITICAL:

1. Study proposed medical and health legislation so that you can talk intelligently concerning it.
2. Be prepared to respond to SOS from the Chairman of the Legislative Committee of the Illinois State Medical Society.
3. Be sure that you and your husband's votes are for the things for which the medical profession stands.
4. Be informed as to the position taken by legislators concerning medical legislation.
5. Do not engage in unbecoming political controversies or be led into such by political parties or candidates. Make your influence felt quietly and by force of numbers. Every candidate for office fears the effect of unity among women.

IV—ECONOMIC:

1. Every physician's wife should be interested in the

legitimate business success of her husband. To that end she should use her influence to prevent:

- (a) The unfair competition of badly managed welfare clinics which in the final analysis are detrimental to public and profession alike.
 - (b) The impositions practiced by individuals and under the guise of charity secure valuable medical and surgical services for which at least modest fees should be paid.
 - (c) The increasing tendency among well-intentioned welfare workers to demand and secure unjustified free professional services for a large class of people who while not able to pay regular fees are not objects of charity but can pay something and thus aid in limiting pauperism and dependency with its ultimate increase of general taxation. Oppose free clinics, open to all, that pauperize the community.
2. On behalf of the community the physician's wife may be able to use her influence to bring about the realization that the medical care of the sick poor is a community obligation and not one to be shifted to a few generous and philanthropically minded physicians.
 3. Keep posted on legislative action that affects physicians as in the case of taxation:
 - (a) Unfair provisions of income tax.
 - (b) Unfair duties on instruments, drugs, books, etc.
 - (c) Paternal legislation like Sheppard-Towner bill.
 4. The better the physician the better the service to public and correspondingly better income from service rendered, hence husbands should be encouraged to read latest medical journals, attend post-graduate courses, and, above everything else, attend meetings of county medical society. Wives can do much to encourage this feature.

V—SOCIAL:

1. Least important but necessary in the general scheme:
 - (a) Get to know physicians' families—create good fellowship. Some of us are more likable than many think we are.
 - (b) Have meetings occasionally to discuss the functioning of auxiliary and plans for future. Invite physicians to speak. Serve light refreshments.
 - (c) Don't alienate women desirable as members by unseemly scramble for office or preferences of any kind. Select your representatives with an eye to ability and fitness for the position.
 - (d) Don't neglect the social features which promote acquaintance and good feeling among your members, but make that a minor feature in your constructive work.
 - (e) Encourage the admiration, sympathy and help

and the appreciation of members of the medical profession and be guided by their advice.

ORGANIZED COUNTIES, WOMEN'S AUXILIARY,
ILLINOIS STATE MEDICAL SOCIETY

Cook

President—Mrs. G. L. Kaufman, 2440 Lake View avenue, Chicago.

Corresponding Secretary—Mrs. N. M. Percy, 2130 Lincoln Park West, Chicago.

Vermilion

President—Mrs. S. M. Hubbard, Ridgefarm.

Corresponding Secretary—Mrs. L. V. Fairhall, Danville.

Rock Island

President—Mrs. Louis Ostrom, 1037 21st street, Rock Island.

Corresponding Secretary—Mrs. H. P. Miller, Rock Island.

Coles-Cumberland

President—Mrs. C. D. Swickard, Charleston.

Corresponding Secretary—Mrs. G. B. Dudley, Charleston.

McLean

President—Mrs. R. R. Loar, 1302 Central avenue, Normal.
Corresponding Secretary—Mrs. T. D. Cantrell, 1201 East Jefferson avenue, Bloomington.

Kane

President—Mrs. R. S. Scott, 216 S. 3rd street, Geneva.
Secretary—Mrs. R. C. Hetherington, 218 S. 14th street, Geneva.

Fulton

President—Mrs. H. G. Hirschle, Canton.

Secretary—Mrs. W. J. Zeigler, Canton.

DeKalb

President—Mrs. R. J. Dakin, Sandwich.

Secretary—Mrs. E. A. Telford, DeKalb.

Randolph

President—Mrs. L. J. Smith, Chester.

Secretary—Mrs. E. A. Pautler, Red Bud.

Douglas

President—Mrs. F. C. Phillips, Arthur.

Secretary—Mrs. C. O. Norris, Arthur.

Sangamon

President—Mrs. H. B. Henkel, 1129 S. 2nd street, Springfield.

Secretary—Mrs. Harry Otten, 1417 Park avenue, Springfield.

Will-Grundy

President—Mrs. E. R. Steen, 308 Sterling avenue, Joliet.

Secretary—Mrs. Matthew Bloomfield, 817 Mack street, Joliet.

ANNUAL MEETING OF THE AMERICAN
PUBLIC HEALTH ASSOCIATION

The Sixtieth Annual Meeting of the American Public Health Association will be held in Montreal, Quebec, September 14-17. The Windsor Hotel will be headquarters.

For particulars write

C. C. YOUNG, D. P. H., Chairman,
c/o American Public Health Association,
450 Seventh Ave., New York City.

THE STATE MEDICAL JOURNALS HAVE
COMBINED IN PROMOTING A CO-
OPERATIVE CLINIC TOUR
OF EUROPE

The State Medical Journals are promoting a co-operative clinic tour of Europe. The co-operative feature of the enterprise makes it possible

to offer their readers a most interesting European clinical tour at a price that is unusually attractive.

It differs from the traditional clinic tour in two very conspicuous ways: the individual clinic service by which a man is enabled to see in each city the things that most immediately concern him, and the new range of choice in the matter of transportation. We have joined with the other State Journals in the organization of this party because we believe that the features just mentioned will appeal very strongly to doctors of independent habit of mind and also because it enables us to offer to the members a tour at practically wholesale prices.

All arrangements for the tour have been made with the "Travel Guild," a tourist agency of large experience and unquestioned integrity. The tour begins at the port of embarkation, Montreal, Canada, June 12, and closes at the same point July 20. The price for the tour complete and without exception, is \$895.00. It would be difficult to arrange a more attractive itinerary combining both work and play, than this one, and most certainly not for the low cost mentioned. Accommodations throughout will be first class, including cabin service crossing the ocean, railroad transportation in Europe, and class A hotels wherever stops are made.

Of especial interests in connection with this tour is the offer of transportation by de Luxe private automobiles, or by air. There will be, of course, an additional charge for transportation of this character. There is a booklet which tells all about it, and which may be had by applying to the JOURNAL office or the headquarters of the Travel Guild.

The tour will begin immediately following the annual session of the American Medical Association at Philadelphia. Those who desire to take the trip can leave Philadelphia late in the afternoon of June 11, and arrive in Montreal in time to catch the boat early the next morning, June 12.

Those who have in mind a vacation abroad this summer will find the co-operative tour worth investigating. The Travel Guild has prepared a beautiful booklet describing the tour which will be sent to anyone upon request. Clip the coupon to be found in the four page insert in advertising section of this issue of the JOURNAL and send it to headquarters and a booklet describing the

tour will be sent you promptly. Write to the office of the JOURNAL or the Travel Guild Company, 180 N. Wabash Avenue, Chicago, Illinois.

FOREIGN COOPERATION IN CONNECTION WITH THE CLINIC TOUR

We have a truly wonderful list of men in Europe who are making all local arrangements in each place for the members of our party. The list is as follows:

London. A. McBeth Elliott, M. D., Master of Surgery.

Holland. Dr. Jan Shoemaker of the Shoemaker Clinic in The Hague, assisted by Dr. W. H. Teupken.

Berlin. Dr. Max Boehm, Medical Advisor of the German Government.

Leipzig. Dr. Wilhelm Lange, Director of the Nose and Ear Clinic of the University and of the new Pathologic Anatomical Institute.

Dresden. Dr. Rostoski and Dr. Bahrdt, Professors in the University, and Chief Surgeons of the Municipal Hospital.

Prague. Professor Arnold Jirasek, Professor of Surgery in Karlova University.

Vienna. Hofrat Dr. Anton Eiselsberg, and Hofrat Dr. Julius Wagner-Jauregg, Professors in the University of Vienna.

Munich. Professor Doctor Erich Lexer, Director of the Institute of Clinical Surgery and Professor Doctor Friedrich Mueller of the Medical Faculty.

Zurich. Professor Doctor Otto Veraguth, Dean of the University.

Berne. Dr. Karl Wegelin, Dean of the Medical Faculty. A cordial welcome from Dr. F. de Quervain.

Paris. Dr. Henri Hartman, Professor of Surgery in the University of Paris and President of the National Committee on the Development of Medical Connections.

I do not believe that this list could easily be improved upon. If it does not impress the doctors of the country I cannot imagine a list that would!

Radiological Congress. Also please point out that the week in Paris coincides with the meeting of the International Radiological Congress. President Dr. Beclere has expressed a genuine interest in having our members visit the Congress. The Congress will be comprised of six sections:

1. Radio physics
2. Radio biology
3. Radio diagnostics
4. Radio Therapy
5. Medical Electrology
6. Natural and Artificial Heliotherapy.

An exhibit will also be organized in connection with the Congress. Members who desire to take part in the festivities and receptions organized for the occasion of the Congress should send their subscription in advance

to the Secretary of the Congress, Dr. R. Ledoux-Lebard, 122 Rue de La Boetie, Paris (VIII). The subscription is 300 francs (\$12) for official members attending the Congress and 50 francs, (\$2) per person for those accompanying the members.

The following questions will be analyzed:

1. Radiologic examination of the Alimentary Canal.
2. Radiologic examination of the Urinary Tract with concrete illustrations.
3. Treatment of Cancer.
4. Radiotherapy of Inflammatory Diseases.
5. Electrotherapy Diathermic of Inflammatory Diseases.

In each case a conference of thirty minutes' duration will be held in the presence of the whole assembly and members of the Congress are cordially invited to bring forth the results of their personal experience on the different subjects involved.

POST A. M. A. TRIP TO BERMUDA

A FAIRYLAND IN FACT AND FANCY

Outdoor Sports. Lovers of tennis and golf will find ample opportunity to indulge in these sports on the islands. Aside from the courts attached to the larger hotels, there are private tennis clubs and a number of golf links. A new 18-hole course has recently been completed. Cricket, of course, is the chief native game, but there are facilities as well for baseball and football for any who care to play.

Water sports, however, are the *raison d'être* of Bermuda in the summertime. Conditions for boating, bathing and fishing are ideal. With a native pilot, one may navigate the sounds and harbors, explore the uninhabited islands nearby, and visit headlands and bays that are not accessible by road.

The picturesque native dinghies are always at the service of visitors for a moderate consideration. These tiny open boats carry a large sail spread-a-leg-of-mutton rig, peculiar to Bermuda waters; or motor boats are available for those who prefer that type of water traveling.

Moonlight Canoeing on Still Waters. Canoeing by moonlight on still evenings, with phosphorescent water dripping silver from the paddle, and the melodious thrumming of native guitars tinkling across the bay, furnish romance and starlit dreams to youth in love.

As for bathing, Bermuda furnishes as fine as any in the Atlantic. On account of the coral reefs, the water is absolutely free from floating debris of any kind, and is unusually salty and buoyant. Either still water or surf bathing may

be had in water as delightful as that of the tropics.

Big game fishing is a popular sport in the reef-lined bays. Among the fighters that can be caught are the rockfish, sometimes running to 100 pounds in weight; the amberfish, the hogfish, porgy, bream and snapper.

A Visit to Crystal Cave. One of the interesting visits which every tourist makes is that to the caves in the Walsingham district, where Tom Moore was wont to wander in bygone days. Beneath the hills are famous grottoes, with deep, silent pools, islands, and walls of glistening calcite, groups of artistic columns, translucent draperies, myriads of tapering stalactites and stalag-

mites, and many other curious formations that arrest the eye by their imagery.

There is nothing more unique in Bermuda than this strange creation of lime and water many feet below the flowers and trees. Our trip includes a visit to Crystal Cave, one of the most picturesque and magnificent.

No Passports. Although Bermuda is a British colony, and thus a "foreign land," no passports are required. Visitors from the United States find themselves very much at home in this land of "pounds, shillings and pence."

Bermuda has two delightful little towns. Hamilton, the capital, is a charming picture of white

MAKE A. M. A. HOTEL RESERVATIONS EARLY

BELOW MAY BE FOUND A LIST OF HOTELS AND RATES FOR ROOMS
HOTELS AT PHILADELPHIA

Name and Address	Single		Double		Suites
	Without Bath	With Bath	Without Bath	With Bath	
ADELPHIA, 13th and Chestnut Sts.....	.....	\$4.00-6.00	.....	\$6.00-10.00	\$12.00-20.00
BARTRAM, 33rd and Chestnut Sts.....	\$2.00-2.50	3.00	3.00-3.50	4.00- 5.00	6.00
BELGRAVIA, 1811 Chestnut St.....	.....	4.00	.....	6.00- 7.00	8.00 and up
BELLERICH, 15th and Spruce Sts.....	.....	3.00-5.00	.....	4.00- 6.00	7.00- 8.00
BELLEVUE STRATFORD, Broad and Walnut Sts.....	4.00-6.00	5.00-9.00	6.00-8.00	7.00-13.00	20.00-30.00
BENJAMIN FRANKLIN, 9th and Chestnut Sts.....	.....	4.00-6.00	.....	6.00-10.00	12.00-30.00
CHATHAM, 20th and Walnut Sts.....	.....	5.00	.....	7.00	8.00-12.00
COLONIAL, 11th and Spruce Sts.....	1.50-2.50	3.00-4.00	2.00-2.50	4.00- 5.00	6.00- 7.00
DRAKE, 1512 Spruce St.....	.....	4.00-6.00	.....	7.00-10.00	12.00-15.00
ELKS, Broad at Vine St.....	.....	2.50-3.50	.....	5.00- 7.00	10.00-15.00
EMBASSY, 1603 Girard Ave.....	2.00-3.00	3.50	2.00-4.00	5.00	.....
FAIRFAX, 43rd and Locust Sts.....	.....	3.00-4.00	.....	5.00- 6.00	7.00-10.00
GLADSTONE, 11th and Pine Sts.....	.....	4.00	.....	7.00	12.50
GREEN's, 5th and Chestnut Sts.....	2.00-2.50	3.00-3.50	3.50-4.00	4.50- 5.50	.....
GREEN HILL FARMS, City Line and Lancaster Pike....	.....	7.00-8.00	.....	9.00-11.00	14.00-16.00
LAFAYETTE, 1339 Arch St.....	2.00-2.50	3.00-3.50	3.00-4.00	5.00- 6.00	8.00-10.00
LORRAINE, Broad and Fairmount Ave.....	2.50	3.00	3.50	5.00	10.00
MAJESTIC, Broad and Girard Ave.....	2.00	3.00	3.50	5.00- 6.00	8.00-12.00
MARLYN, 40th and Walnut Sts.....	.....	2.50-3.50	.....	4.00- 6.00	8.00-12.00
MAYFAIR, Lincoln Drive and Johnson St.....	.....	3.00 and up	.....	5.00 and up	5.00 and up
MCALPIN, 111 S. Tenth St.....	2.00	2.50-3.50	3.50	4.00- 5.00	7.00 and up
PENNSYLVANIA, 39th and Chestnut Sts.....	.....	3.00-5.00	.....	5.00-10.00	12.00 and up
RITTENHOUSE, 22nd and Chestnut Sts.....	2.00-3.00	2.50-3.50	3.00-4.00	4.00- 6.00	8.00-10.00
RITZ-CARLTON, Broad and Walnut Sts.....	.....	6.00-8.00	.....	10.00-12.00	20.00 and up
ROBERT MORRIS, 17th and Arch Sts.....	.....	3.00-4.00	.....	5.00- 6.00	.....
ST. JAMES, 13th and Walnut Sts.....	.....	3.00-4.00	4.00-5.00	5.00- 7.00	8.00-10.00
SPRUCE, 13th and Spruce Sts.....	2.50	3.00	4.00	5.00	.....
STEPHEN GIRARD, 2027 Chestnut St.....	2.50	3.00	.....	4.00- 6.00	.....
SYLVANIA, Juniper and Locust Sts.....	.....	3.50-5.00	.....	6.00- 8.00	12.00-15.00
TRACY, 36th above Chestnut St.....	2.00	3.00	.....	5.00	4.00- 6.00
VENDIG, 13th and Filbert Sts.....	.....	3.00-4.00	.....	5.00- 7.00	.....
WALTON, Broad and Locust Sts.....	2.50-3.00	3.50-5.00	4.00-5.00	6.00- 8.00	12.00-15.00
WARBURTON HOUSE (Women), 20th and Sansom Sts...	2.50	3.00-4.00	4.00	5.00	6.00
WARWICK, 17th and Locust Sts.....	.....	5.00 and up	.....	8.00 and up	15.00 and up
WELLINGTON, 19th and Walnut Sts.....	.....	5.00	.....	6.00	10.00 and up
WINDSOR, 1219 Filbert St.....	2.00	2.50-3.00	3.00-4.00	4.50- 5.00	7.00
Y. M. C. A., 1421 Arch St.....	1.50-2.00	.....	3.00- 4.00	.....	.....

There should be no difficulty encountered in securing satisfactory accommodations if those who expect to attend the annual session of the American Medical Association, June 8 to 12, will send in their applications at the earliest possible time. Applications should be sent at once to Dr. Frederick S. Baldi, Chairman of the Subcommittee on Hotels, 304 Chamber of Commerce Building, 1129 Walnut Street, Philadelphia. Applicants for reservations are especially requested to include a second and a third choice in order that good accommodations may be assured if the desired reservation cannot be had at the hotel of preference.

houses, glistening in the bright sunlight, and quaint little English shops.

St. George's, a city of historical old buildings and quaint streets, was settled in 1612, three years after the Islands were claimed as a British possession by a group of colonists under Admiral Sir George Somers, shipwrecked here on their way to Virginia.

The person who wants retirement and rest during his stay can find it anywhere on the islands. There are no clattering trolley cars, no whirring, honking automobiles. The visitor easily imagines himself transported as if by magic to the quieter, less nerve-racking and more dignified days of the last century. So jealous of this feature of their home are the Bermudians that motor traffic is forbidden by law.

But we have written enough about the charms of this wonderful little spot. Visit the islands and see for yourself—and then agree with W. D. Howells, who tersely remarked after the fascinating trip:

"There is more beauty to the square foot in Bermuda than anywhere else in the world!"

If you are intrigued by the charms of Bermuda turn to page 13 of the advertising section and read how you can pronounce the "open sesame" for a delightful outing.

GEORGE PETER DREYER, Ph. D. (1866-1931)

George P. Dreyer was born in Baltimore, September 22, 1866, and until 1900 his life was spent in that city. He was educated in Baltimore City College and in Johns Hopkins University. Following his A. B. degree from Hopkins in 1887 he was fellow in Physiology '88 and '89, under the distinguished Physiologist, Newell Martin, and received his Ph. D. degree in 1890.

Dr. Dreyer's early intention was to study medicine, but his contacts at Hopkins with Martin, and later with Howell, definitely brought him to decide on Physiology as a career; a decision which he never regretted. He valued highly the acquaintances made in those earlier days. Such men as Henry Sewall, E. G. Conklin, T. H. Morgan, A. C. Abbott, C. W. Greene, Percy Dawson, Joseph Erlanger and David Lingle left pleasant and lasting memories.

From 1890 until 1900 he was Associate Professor at his alma mater and during this time he became the master of physiological technique and manipulation for which he was justly famous. No one ever saw Professor Dreyer operate without admiring his skill. As a teacher he was as successful as he was technically skillful. His demonstrations were uniformly successful, and accomplished with a facility which often hid the actual difficulties. His first humiliation occurred

when he had to use spectacles to catheterize Wharton's duct. While he accepted this premonition of approaching age philosophically, he frequently spoke of it.

In 1900 Dr. Dreyer came to Chicago as Professor of Physiology and Physiological Chemistry in the College of Physicians and Surgeons, which had formed an affiliation with the University of Illinois. The conditions were far from ideal, and far from what he had anticipated. The affiliation proved to be loose, and was soon broken, and for a time, the College of Physicians resumed its proprietary status. During the interim Dr. Dreyer remained, hoping for a reunion which would bring university standards, conditions and ideals. Satisfactory conditions, however, were not established until about 1915, and to make these conditions operative, Dr. Dreyer assumed the office of Dean. In this office he developed university working conditions and ideals for others, but at the cost of his health and with the sacrifice of research for many years. While acting as Dean, he suffered an attack of pneumonia, followed by empyema which left him physically incapacitated for more than a year. While he was afterwards mentally alert and able to resume professional duties, he had not the physical stamina demanded for research. Until the time of his death, Feb. 27, he was compelled to avoid unnecessary exertion and to adopt measures to retain and to promote health.

As a health promoting measure, as well as from actual pleasure, he spent much of his leisure time in gardening, and the flower garden of his suburban home was the rendezvous of amateurs and friends.

Dr. Dreyer was a pioneer physiologist in Chicago; when he came many men on the Atlantic Seaboard could visualize only vulgarity and incivility west of the Alleghanies. So far as physiology was concerned this was "pragmatically" true. Only Jaques Loeb at Chicago and Winfield Scott Hall at Northwestern had preceded him. A. P. Mathews, David J. Lingle, George Neil Stewart, C. C. Guthrie and Alexis Carrell soon followed. All these men bore the burden and worked in the heat of the day, but none of them were exposed to the disruptive ultra-violet rays as was Dreyer. An ancient prophet said that old men dream dreams and the young men see visions. Dreyer was young and had vision, and Chicago today is physiologically what he hoped it would be. His only regret was that he was unable to contribute more to his chosen profession, but he prepared the soil for others.

During the past two years he devoted much time in planning a new laboratory in which he hoped to again resume research work. He lived to see this laboratory almost ready for occupancy, but after thirty years in the wilderness of promise, he was allowed to see, but not to enter, the promised land.

During his thirty years' service to the University of Illinois, Professor Dreyer came in contact with thousands of students and graduates. He was known to them as a great teacher, a profound student, a gentleman and a friend.

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

NINTH ANNUAL MEETING

Philadelphia, June 8-12, 1931

Headquarters, Bellevue-Stratford Roof Garden
Registration daily, 9 A. M. to 5 P. M.

All meetings will begin precisely at the hour indicated. Please be prompt.

All women attending the convention, whether Auxiliary members or not, are invited to participate in this entire program.

PROGRAM

Monday, June 8—

12:30 P. M. In Honor of National Presidents, 1922-1932. Buffet luncheon, subscription....
.....Roof Garden

2:00 P. M. Three Round Tables, 35 min. each, 10 min. intermissionsRoof Garden
Subjects

1. Programs for County Auxiliary Meetings.
2. The Technique and Value of a Committee on Public Relations.
3. History and Archives.

6:30 P. M. Board Dinner, subscription...Red Room

7:30 P. M. Board MeetingRed Room

Tuesday, June 9—

9:30 A. M. General MeetingRoof Garden

12:30 P. M. Luncheon (Bellevue Special) Roof Garden

1:30 P. M. *Bus trip to Valley Forge.
Tea in Log Cabin.
Hostesses: Berks, Chester, Delaware and Montgomery county, Pa., Auxiliaries.

or

1:30 P. M. *Boat trip on Delaware River, tea on board.
Hostesses: Bucks county, Pa., Burlington, Camden and Gloucester county, N. J., Auxiliaries.

or

2:00 P. M. Visit to Historical Society of Pennsylvania, 1300 Locust street.

Special Docent Service.

Brief address by Dr. Charles W. Burr of Philadelphia: "The Daily Life of the Colonial Physician."
Special exhibitions on view throughout the convention.

8:00 P. M. General Meeting of A. M. A.....
.....Academy of Music

10:00 P. M. Supper dance.....Bellevue Ball Room
Hosts: The Philadelphia County Medical Society.

Wednesday, June 10—

9:00 A. M. General Meeting and Election.....
.....Roof Garden

12:30 P. M. Auxiliary Luncheon, Subscription.....
.....Roof Garden
Guests and speakers from A. M. A.
Music by courtesy of the Delaware State Auxiliary.

2:30 P. M. Bus trip through historic Philadelphia, Fairmount Park and Germantown.
Hosts: The Philadelphia County Medical Society. Tea at "Stenton."
Hostesses: New Jersey State Auxiliary.

8:30-11:00 P. M. Auxiliary Reception.....
.....University Museum
Hostesses: Pennsylvania State Auxiliary. Music, Special Docent Service.

Thursday, June 11—

9:00 A. M. Board MeetingRed Room

10:00 A. M. Meeting for all state and county treasurersRoof Garden

10:30 A. M. General Round Table.....Roof Garden
Subject: "What Have I Gotten Out of the Convention?"
Opening of Question and Suggestion Box.

12:00 M. Luncheon (Bellevue Special).....
.....Roof Garden

1:00 P. M. *Bus trip, "Longwood". Estate of Mr. and Mrs. Pierre S. duPont.

or

2:30 P. M. *Visit to Fairmount and Rodin Museums. Special Docent Service.

9:00 P. M. President's Ball
.....Benjamin Franklin Ball Room
Hosts: American Medical Association.

Friday, June 12—

9:30 A. M. †Bus trip to Atlantic City, including visit to Convention Hall, ride in wheel chair (1 hour).
Luncheon at the Claridge.
Atlantic City Auxiliary in charge.
Return at 5 P. M. or 10 P. M.

or

11:00 A. M. Trip through Wanamaker's with luncheon in Crystal Tea Room.

*Bus transportation paid by members.

†Inclusive price \$5.00.

"As You Like It"

Daily from 9 A. M. to 5 P. M. arrangements may be made at this Booth in the Roof Garden for golf, shopping, or any special trips desired, e. g., Historic Churches, Fairmount Park Mansions, Suburban Gardens, etc.

All tickets and invitations must be *procured in advance* in the Bellevue Roof Garden. Only programs will be obtainable elsewhere.

ILLINOIS STATE MEDICAL SOCIETY EIGHTY-FIRST ANNUAL MEETING

EAST ST LOUIS, ILLINOIS

MAY 5, 6, 7, 1931

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WOMEN'S AUXILIARY TO ILLINOIS STATE

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Corresponding Secretary—Mrs. F. P. Hammond, 6020 Drexel Ave., Chicago.

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HEADQUARTERS—Broadview Hotel.

REGISTRATION BOOK—Ainad Temple.

WOMEN'S AUXILIARY

PROGRAM

Tuesday, May 5, 1931

10:00 a. m.—Board Meeting, Broadview Hotel.

11:30 a. m.—County Presidents meet with President-Elect Mrs. T. O. Freeman.

1:30 p. m.—Trip to Forest Park, St. Louis, visiting Lindbergh's Trophies and Zoo—for all visiting ladies.

6:30 p. m.—Dinner for Board and County Presidents.

7:30 p. m.—Opening Meeting of the Illinois State Medical Society at Shrine Temple. Principal address to be given by Richard L. Sutton, Kansas City; illustrated talk, "The Long Trek."

Wednesday, May 6, 1931

9:00 a. m.—Open Meeting for all Members and guests—Broadview Hotel.

1:00 p. m.—Luncheon—St. Clair Country Club for all Members and Guests. Speakers: Mrs. A. B. McGlothlan, St. Joseph, Missouri, President-Elect Woman's Auxiliary to the American Medical Association. Mrs. G. Henry Mundt,

Chicago. Bridge and golf following the luncheon program.

6:30 p. m.—President's Dinner, Illinois State Medical Society, honoring the President, William D. Chapman, and Past Presidents. This dinner at the Knights of Columbus Building.

Thursday, May 7, 1931

9:00 a. m.—New Board Meeting, with the President, Mrs. T. O. Freeman.

LADIES' ENTERTAINMENT

For all visiting ladies at the meeting.

Ladies' Registration, at Shrine Temple, General Registration Headquarters.

Tuesday, May 5, 1931

11:00 a. m.—Style Show, at Catholic Community House, 422 St. Louis Ave. Sponsored by "Seidel's Store."

1:30 p. m.—Trip to Forest Park, St. Louis, visiting Lindbergh Museum, where Lindbergh Trophies are shown, and visit to noted Forest Park Zoo, and the Art Museum.

7:30 p. m.—Opening Meeting, Illinois State Medical Society, at Shrine Temple. Principal address to be given by Richard L. Sutton, noted Big Game Hunter, Kansas City, Missouri. An illustrated talk on "The Long Trek."

Wednesday, May 6, 1931

9:00 a. m.—Meeting of Woman's Auxiliary, to which all visiting women are invited.

1:00 p. m.—Luncheon at St. Clair Country Club, followed by bridge or golf. Ladies' desiring to play golf before or after the luncheon should arrange with Mrs. O. J. Culbertson, Chairman, Ladies' Entertainment Committee.

6:30 p. m.—Annual President's Dinner at Knights of Columbus Building, honoring William D. Chapman, President, Illinois State Medical Society, and the Past Presidents.

SECRETARIES' CONFERENCE

Shrine Temple

I. L. Foulon, *President*.....East St. Louis
W. D. Murfin, *Vice-President*.....Decatur
Harold Swanberg, *Secretary*.....Quincy

Tuesday Morning, May 5, 1931, 10-12

1. "The Challenge of Syphilis"—Andy Hall, Director, Department of Public Health, Springfield.

Perhaps no single health problem is of greater importance and magnitude than syphilis. It results in a

vast amount of physical and mental delinquency and causes a much greater volume of mortality than is disclosed by a casual study of statistics.

Discussion opened by F. Buckmaster, Effingham, and C. D. Snively, Ipava.

2. "The Educational Committee and Its Relation to the County Medical Society"—Jean McArthur, Secretary, Educational Committee, Chicago.

The Educational Committee has served as a clearing house for the dissemination of health information and advice more and more frequently sought by lay groups. Individual physicians and county medical societies can strengthen their own position as leaders in health activities in their communities by definite contact with and support of the program conducted by the Educational Committee.

Discussion opened by Chas. P. Blair, Monmouth, and H. A. Elkins, Mt. Carmel.

3. "The County Society Secretary; Some of His Burdens with Few Rewards"—E. J. Goodwin, Secretary, Missouri State Medical Association, St. Louis. (By invitation.)

The selection of a member to be the Secretary of the component Society deserves considerable thought. When the office is given to the wrong individual the error is not readily apparent. He should be allowed time to demonstrate whether he is suitable for the job. A realization of his responsibility is the first burden laid upon the secretary. If he fails to envisage this he can never succeed.

Discussion opened by F. N. Wells, Pittsfield, and Elizabeth R. Miner, Macomb.

4. "Public Relations of the County Medical Society"—Nathan S. Davis III, Chicago.

The importance of the County Medical Society taking an active and constructive part in all public health activities. The folly of passing resolutions for or against any such activities unless such resolutions provide for the appointment of a committee to cooperate with the organization in question and educate them, to the viewpoint of the medical profession.

Discussion opened by H. O. Munson, Rushville, and E. E. Perisho, Streator.

5. "Medicine and Big Business"—R. R. Ferguson, President-elect, Illinois State Medical Society, Chicago.

Many articles and editorials are appearing in newspapers and magazines on the high cost of medical care, hospital operation, Our Code of Ethics and Medical Advertising, all giving us plenty of advice. Big business has almost completely broken down; shops are closed, millions idle, banks closed, seven million depositors losing, or tying up one and one-half billion

dollars. Should Scientific Medicine break down as has big business, disease and famine would devour us.

Discussion opened by Lee O. Frech, Decatur, and T. D. Doan, Palmyra.

The Annual Banquet of the Secretaries will be held Tuesday evening, May 5, 1931, at 6:00 o'clock, at the Catholic Community House.

Two short addresses following the banquet:

1. "Our Duties and Responsibilities"—Harold M. Camp, Monmouth.
2. "The Economic Trend and Imperative Need for Change in Method and in the Attitude of Present Medical Practice"—Chas. D. Center, Quincy.

The Dinner Program will end in time for the opening meeting to be held at 7:30 p. m. at the Shrine Temple.

MEETING OF THE HOUSE OF DELEGATES

Shrine Temple

Tuesday Afternoon, May 5, 1931

3:00—Meeting called to order by the President, William D. Chapman, for reports of officers, the councilors, and committees, and to transact other business that may come before the House.

Thursday Morning, May 7, 1931

8:30—Meeting called to order by the President for election of officers, councilors, committees, delegates to the American Medical Association, report of resolutions committee and for the transaction of other business that may come before the House.

At the close of this meeting, the President-Elect, R. R. Ferguson, will be inducted as President of the Illinois State Medical Society.

PRESIDENT'S DINNER

The Annual President's Dinner will be held at the Knights of Columbus Building on Wednesday evening, May 6, 1931, at 6:30. This is an interesting function honoring our President, William D. Chapman, and the Past Presidents of the Illinois State Medical Society who will be guests at the dinner. It is hoped that every member and guest at the meeting will attend this dinner.

Dr. F. O. Fredrickson, the immediate past President, will preside as Toastmaster. A suitable dinner program will be arranged by the committee.

Tickets for the dinner can be procured at the

Registration Desk from any member of the President's Dinner Committee. The President's address and Oration in Medicine will follow the dinner, the meeting in charge of the First Vice-President, B. G. Wilcox.

THE STAG

Immediately after the opening meeting on Tuesday evening, the St. Clair County Medical Society will be host to the visiting members and guests. The nature of the program and entertainment will be announced during the meeting.

GENERAL SESSIONS

Tuesday Evening, May 5, 1931

Shrine Temple

7:30—Meeting officially opened by the President, William D. Chapman.

Invocation—Rev. Walter Schlaretzki, Pastor Federated Church, East St. Louis.

Address of Welcome—Mayor of East St. Louis.

Address of Welcome—Jos. E. Beykirch, President St. Clair County Medical Society, East St. Louis.

Report of Chairman, Committee on Arrangements—I. L. Foulon, East St. Louis.

Address—"The Long Trek." (Illustrated by lantern slides.) Richard L. Sutton, M. D., Kansas City, Mo. (By invitation.)

Dr. Sutton is one of America's greatest travelers and Big Game Hunters and he has one of the finest collections of photographs in existence, which will be shown during the talk.

Wednesday Afternoon, May 6, 1931

1:15—"Aviation Medicine, with Special Reference to the Special Examinations"—Col. Louis H. Bauer, Former Medical Director, Bureau of Aeronautics, Department of Commerce, Hempstead, Long Island, N. Y. (By invitation.)

2:00—Oration in Surgery—Evarts A. Graham, Professor of Surgery, Washington University School of Medicine, St. Louis. (By invitation.)

"Lowering the Mortality in Operations on the Biliary Tract."

Wednesday Evening, May 6, 1931

Knights of Columbus Building

7:30—President's Address, William D. Chapman, President, Illinois State Medical Society.

8:00—Oration in Medicine, W. W. Duke, Kansas City. (By invitation.)

"Allergy as Related to the General Practice of Medicine."

SECTION PROGRAMS

SECTION ON MEDICINE

Shrine Temple

Lowell D. Snorf, *Chairman*.

Warren Pearce, *Secretary*.

Tuesday Afternoon, May 5, 1931

Joint Session of Sections on Medicine, Surgery, Public Health and Hygiene, and Radiology.

Program by Guest Speakers

1:00—"Heart Disease—Prevention and After Care," I. C. Riggan, Executive Secretary, American Heart Association, New York City.

1:45—"Diagnosis of Spinal Cord Lesions," Ernest Sachs, Professor of Neurologic Surgery, Washington University School of Medicine, St. Louis.

2:30—"Recent Developments in Tularemia," Walter M. Simpson, Dayton, Ohio.

3:15—"The Roentgen Examination," Edward H. Skinner, Kansas City.

4:00—"Facts Concerned in Gall Bladder Evacuation," illustrated by motion pictures, A. C. Ivy, Professor of Physiology, Northwestern University Medical School, Chicago.

4:45—"Our Present Conception of the Pathological Processes Caused by Intestinal Obstruction and Some of Its Clinical Applications," Willis D. Gatch, Professor of Surgery, University of Indiana, Medical School, Indianapolis.

These little talks are all practical and of interest to men in General Practice or to any of the Specialists. Strictly technical terms are to be avoided, to increase the value of the presentations to all physicians in attendance.

Wednesday Morning, May 6, 1931

9:00—"Luetic Aortitis," L. Feldman, Chicago.

Luetic aortitis is a frequent disease. It may appear early or late in the course of the infection. It is essentially a disease of the media, involving most commonly the first portion of the aorta. More attention should be paid to the aortic arch, for prognosis depends greatly upon early therapy.

Discussion opened by N. S. Davis III, Chicago.

9:30—"Coronary Thrombosis," Walter S. Priest, Chicago.

Approximately seventy cases of coronary thrombosis are analyzed. The subject is discussed with reference to age incidence, previous history of coronary disease, location and radiation of pain, differential diagnosis and

treatment, the subsequent course of those surviving the initial attack and the value of the electrocardiogram in the diagnosis, prognosis and management of the disease.

Discussion opened by H. A. Durkin, Peoria.

10:00—"Trauma as a Cause of Heart Disease," Fred M. P. Meixner, Peoria.

Injury to chest common in industry. Concussion of chest may produce shock and fibrillation. Obscure clinical effect and myocardial lesions may follow crushing injuries. Temporary or permanent effects of aggravation of basic lesions may follow accident and result from traumatic organic change in heart. Prognosis depends on degree of circulatory disturbance produced by defect.

Discussion opened by Don C. Sutton, Chicago.

10:30—"Chronic Vascular Occlusion of the Extremities," (lantern slide illustrations), Geza de Takats, Chicago.

Types of vascular occlusion are described. A system of examination for circulatory efficiency is demonstrated by clinical charts. The therapeutic efforts to increase collateral circulation, relieve vascular spasm and alleviate pain are presented. The differentiated diagnosis of spastic and organic occlusions and the indications for conservative and surgical measures are discussed.

Discussion opened by S. E. Munson, Springfield.

11:00—"Importance of Quantitative Diets in Diabetes and Obesity," Walter H. Nadler, Chicago.

Whereas some patients respond to simple restriction, others admittedly require accurate measurement of foods. As the dietician's work becomes more important it is unfortunate that the clinician rarely requires the ability to calculate diets and give requisite instruction. The principles involved and practice required are not difficult.

Discussion opened by Frank Deneen, Bloomington.

11:30—"Results in the Treatment of Allergic Diseases," Samuel J. Taub, Chicago.

The outlook for the patient having asthma, hay fever or other allergic disease at the present time is quite hopeful. The chances for recovery in any individual case depends on the presence or absence of organic complications, the thoroughness and completeness with which the patient is studied.

Discussion opened by E. E. Edmondson, Carbondale.

Wednesday Afternoon, May 6, 1931

3:00—"Precipitating Factors in Mental Disorders," S. N. Clark, Jacksonville.

A survey of several hundred attacks indicates that

stresses may precipitate functional mental disorders. Consideration of adjustments which are difficult for the patient and of types of factors which have precipitated previous disturbances should avert future attacks in some cases. Supervision is largely in the hands of the family physician.

Discussion opened by Charles F. Read, Elgin.

3:30—"Chairman's Address," Lowell D. Snorf, Chairman, Section on Medicine, Chicago.

4:00—"The Problem of Correlating Clinical Manifestations and Pathological Changes in Nephritis," J. P. Simonds, Chicago.

Two types of nephritis; (A) with primary damage to the secretory portion of the kidneys; (B) with primary involvement of the arteries and arterioles. Both types, clinically and pathologically are progressive processes. On the above basis clinical manifestations and underlying pathology can be correlated and their inter-relations understood.

4:30—"Secondary Anemia," Richard F. Hernndon, Springfield.

Frequency and clinical importance of secondary anemias. The etiological mechanisms involved and their recognition. Classification, consideration of special forms. Treatment by diet and medication.

5:00—"Primary Anemia," W. P. Armstrong, Jr., Springfield.

A discussion of primary anemias, giving briefly the course, signs, diagnosis, treatment and prognosis, with special reference to the continued treatment of pernicious anemia.

Discussion of anemia papers opened by S. R. Hoover, Quincy.

Thursday Morning, May 7, 1931

9:00—"The Treatment of Pyelitis in Children with B Coli Bacteriophage," Gerald M. Cline, Bloomington.

This paper is entirely practical in that it includes reports of the results of a few cases in which B Coli bacteriophage was used subcutaneously in the treatment of pyelitis in children.

Discussion opened by H. S. Maupin, Quincy.

9:30—"A Review of Some of the Advances in Gastro-Intestinal Diseases," Joseph G. Beykirch, East St. Louis.

10:00—"Clinical Significance of Roentgenologic Findings of the Stomach and Duodenum" (lantern slide demonstration), Sidney A. Portis, Chicago.

Modern Gastro-Enterology has become dependent upon a correct interpretation of the roentgenological findings of the stomach and duodenum. The extent of pathology present based upon the clinical story and

findings may be misleading in view of the roentgenological evidence. The question of medical or surgical management in any given case can almost be determined by the roentgenological findings.

Discussion opened by Harold Swanberg, Quincy.

10:30—"Restlessness in Infancy," John Carey, Joliet.

With the present trend of preventive medicine now before us each age group examined points out defects which, had they been discovered at an earlier date, might have been prevented in infancy. If a defect is noted early in a baby's life, is it not justifiable to believe much of the underweight in school children, the anemias and anorexia and perhaps the neurotic child would be eliminated?

Discussion opened by George Edwin Baxter, Chicago.

11:00—"Tuberculosis of the Skin," Cleveland J. White, Chicago.

Some twenty-two cases of tuberculosis of the skin (a few of whom had lesions also in the mouth) have been observed in the past 3 years. Several illustrative cases are cited with emphasis on the clinical and histological findings. Therapy is discussed at length.

Discussion opened by W. B. Wakefield, Peoria.

SECTION ON SURGERY

Shrine Temple

J. H. Bacon, *Chairman*.

Jas. T. Gregory, *Secretary*.

Tuesday Afternoon, May 5, 1931

Joint Session with Sections on Medicine, Public Health and Hygiene and Radiology

Program by Guest Speakers

1:00—"Heart Disease—Prevention and After Care," I. C. Riffin, Executive Secretary, American Heart Association, New York City.

1:45—"Diagnosis of Spinal Cord Lesions," Ernest Sachs, Professor of Neurologic Surgery, Washington University School of Medicine, St. Louis.

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4:45—"Our Present Conception of the Pathological Processes Caused by Intestinal Obstruction and Some of Its Clinical Applications,"

Willis D. Gatch, Professor of Surgery, University of Indiana Medical School, Indianapolis.

These talks are all practical and will be of interest to all physicians whether in General work or in one of the Specialties.

Wednesday, May 6, 1931

9:00—"Acute Pancreatitis," P. E. Hopkins, Chicago.

A brief description of the etiology, symptomatology, diagnosis and treatment, laying special stress upon the thought that acute pancreatitis is a more common condition than is readily recognized.

Discussion opened by Fred H. Gunn, East St. Louis.

9:30—"Injuries to the Kidney," Harry C. Rolnick, Chicago.

This report covers a review of a large series of cases. The vast majority are subcutaneous injuries. There are a few cases of penetrating wounds of the kidney and also a few cases of subcutaneous rupture of hydro- and pyo-nephrosis. The chief symptoms are reviewed, particularly those of renal ileus. With few exceptions treatment has been conservative, non-operative. This latter is particularly emphasized.

Discussion opened by Royal Tharp, East St. Louis.

10:00—"The Role of Prophylaxis in Obstetrics," Frank F. Maple, Chicago.

Our obstetrical death rate is high, mortality, almost the rule, infections, obstetrical accidents, toxemias, the present factors. Almost all are preventable. Treatment must be prophylactic, with estimation of systemic condition, obstetrical diagnosis, and hygiene of pregnancy. Interference in labor limited to indications and a physiological conduct of the third stage.

Discussion opened by A. R. Jarman, White Hall.

10:30—"Multiple Myeloma," Charles D. Center and Thomas J. Merar, Quincy.

Multiple myeloma is a rare malignant disease of the bone marrow, arising chiefly in ribs, vertebrae, and sternum, often exhibiting widely diffuse osseous involvement. Review of literature—Cardinal diagnostic points are Pain—Tumor—Fracture—Deformity—Kidney Involvement—Blood Picture—x-Ray—Presentation of a case report.

Discussion opened by R. W. McNealy, Chicago.

11:00—"The Maggot Treatment of Osteomyelitis," Jacob Myers and Leo Czaja, Chicago.

Previous treatments for osteomyelitis have seemed inadequate. This statement is substantiated by a statistical study of end results as found in the literature. The maggot treatment administered according to the

technique of Wm. S. Baer results in healing without sinuses and quick return to function.

Wednesday, May 6, 1931

3:00—"Diagnosis of Hyperthyroidism," E. P. Sloan and Frank Deneen, Bloomington.

The diagnosis of toxic goiter rests upon the determination of the type and severity of toxemia, degree of risk, and prognosis. The treatment is indicated by the type, duration, severity, and complications present, the risk involved and the prognosis under different forms of treatment.

Discussion opened by R. K. Packard, Chicago.

4:00—"Fractures About the Elbow Joint," (illustrated by lantern slides), Philip H. Kreusch, Chicago.

Elbow fractures always present a difficult problem. Diagnosis, especially in children, is often difficult to make from physical examination and the x-ray film. Mistakes in x-ray exposure and diagnosis must be avoided. Every effort should be made to secure a reduction without open operation. The experience and judgment of the surgeon must determine his course of procedure. Special stress is made upon the immediate and remote injury to the ulnar nerve into the epiphyseal center in children. Complications such as Volkmann's contracture and Myositis should be avoided in every possible way. Early motion is imperative in majority of cases.

Discussion opened by George W. Stabin, Springfield.

4:30—"Post-Operative Management of Abdominal Operation," C. David Brown, Chicago.

This paper in the introduction emphasizes the importance of the post-operative care, and the contents discusses the present prevalent mistakes, and outlines suggestions for the management of numerous and not uncommon complications.

Discussion opened by A. P. Standard, Macomb.

5:00—"The Surgical Treatment of Carcinoma of the Colon," George De Tarnowsky, Chicago.

A plea is made for more radical resections with restoration of the continuity of the Colon. A permanent colostomy, in general, is only indicated in extensive carcinomas of the Sigmoid or where metastases preclude the possibility of a permanent cure. An osteoplastic modification of the Kraske operation is offered in order to overcome herniation of the sigmoid after resection and anastomosis.

Discussion opened by C. U. Collins, Peoria.

5:30—"Mal-Practice," J. R. Ballinger, Chicago.

An arrangement in brief form of the Medico-Legal complaints against doctors that have come before the medico-legal committee for the past fourteen years.

Attempting to set forth the legal position of the physician in these cases, and what he should do to prevent being sued, and what he should do in event a suit is brought against him.

Thursday Morning, May 7, 1931

9:00—"Fractures of the Upper End of the Femur" (lantern slide demonstrations), Frank G. Murphy, Chicago.

This paper consists of a brief mention of important literature contributions, the principal causal factors, the theory of the healing process, and the changes that occur after treatment is completed. The treatment that was used is given with a lantern slide demonstration of the cases before and after treatment, and for a variable length of time following treatment.

Discussion opened by Frank G. Murrah, Heroin.

9:30—"Surgical Treatment of Chronic Arthritis," M. A. Bernstein, Chicago.

1. The role played by the synovial lining of the joint in chronic arthritis.

2. The manner in which the synovial membrane is involved and the effect upon the articular cartilage of the bone.

3. The symptoms and clinical findings of a chronic articular joint.

4. The Roentgen examination and its interpretation.

5. The surgical treatment showing pathological slides of tissue removed and moving pictures of the after-results.

Discussion opened by S. M. Miller, Peoria.

10:00—"Multiple Infections Within the Abdomen," Carl E. Black and Ellsworth Black, Jacksonville.

Dry Cinie.

A case of multiple infections within the abdomen, Gastric Ulcer, Cholecystitis, Appendicitis, Jejunal Ulcer and Fistula. Gastro-jejunostomy, Cholecystectomy, Appendectomy, Cholecystectomy, Intestinal Resection and anastomosis. A problem in primary and secondary, and complicating infections.

11:00—"Factors Which Govern Successful Prostatectomy," Frank M. Phifer, A. J. Sullivan and I. F. Volini, Chicago.

This paper will be considered from the factor which interests the surgeon, from the factor which interests the medical man, and will be a correlation of these facts which make for a lower mortality when doing a prostatectomy.

Alternate Paper:

To be read from title only, provided there is no place on program.

"Viosterol in Pregnancy," Garwood C. Richardson, Chicago.

Election of Officers of the Section.

SECTION ON EYE, EAR, NOSE AND THROAT
Shrine Temple

Harry S. Gradle, *Chairman*.

Wright C. Williams, *Secretary*.

Tuesday Afternoon, May 5, 1931

1:00—Surgery of the Structures Related to the Inner Canthus of the Eye. Lantern illustrations. Vilray P. Blair, St. Louis. (By invitation.)

1:40—"Resume of Laryngeal Embryology," lantern demonstration, O. M. Steffenson, Chicago.

The paper describes the early beginnings of the tracheo-bronchial tree in the groove on the anterior pharyngeal wall and continues with an outline of the continuous development of the cartilages, muscles and nerves of the epiglottis, the thyroid, cricoid and the arytenoid structures.

Discussion opened by John A. Cavanaugh, Chicago.

2:00—"Fibro-Sarcoma of Orbit and the Krönlein Operation," report of a case, lantern demonstration, O. D. Cunningham, Rockford.

A boy 17 developed proptosis of the left eye with pain, poor vision and diplopia. The tumor removed by the Krönlein operation proved to be a fibro-sarcoma. The orbit was not eviscerated, but Roentgen therapy given. Two years later there are no signs of recurrence. The vision is 20/20 with correction and there is a ptosis of the lid.

Discussion opened by George F. Suker, Chicago.

2:20—"Embryological Development of the Nasal Accessory Sinuses," lantern demonstration, W. L. Hanson, East St. Louis.

The maxillary sinus primitively is an evagination of the mucous membrane of the floor of lateral wall of the infundibulum ethmoidale. The recessus frontalis is the rudiment of the frontal sinus and certain of the anterior group of the ethmoid cells. The sphenoidal sinus primarily arises in relation with the posterior cupola of the cartilaginous nasal capsule.

Discussion opened by O. M. Steffenson, Chicago.

2:40—"Congenital Dacrocystitis," Harry W. Woodruff, Joliet.

Report of cases. Anatomy of the infant nasal duct. Etiology of dacrocystitis in the infant. Diagnosis. Differential diagnosis from conjunctivitis. Treatment. Futility of using drops, argyrol, etc. Necessity of making the nasal duct patent. Use of No. 1 Bowman probe under general anesthesia. In some cases the use of counter pressure in the inferior meatus is necessary.

Discussion opened by Ralph Fox, Bloomington.

3:00—"Dust Sensitization in Relation to Hay Fever," L. B. Bernheimer, Chicago.

There are Hay Fever sufferers sensitized to house dust. Good clinical results are obtained only when these individuals are desensitized to the dust Atopin as well as to the pollen. A method for dust desensitization is described, with report of cases.

Discussion opened by Myron E. Kahn, Chicago.

3:20—"Recurrent Hemorrhages into the Vitreous—Eale's Disease"; report of a case, W. R. Fringer, Rockford.

A moderately detailed account of a case of recurrent hemorrhages into the vitreous of a vigorous boy of 16, extending over a period of eight years. The treatment and result. A discussion of the etiology as given by various authors. The use of pilocarpine sweats to hasten the absorption of the blood.

Discussion opened by H. W. Woodruff, Joliet.

3:40—"Transient Hyperopia and Reduced Accommodation in Diabetes Mellitus," C. W. Geiger, Kankakee.

A review of the literature regarding transient hyperopia and the changes of accommodation complicating diabetes. The presentation of two cases showing changes in accommodation and three cases of transient hyperopia occurring during the early treatment of diabetes. The question of cycloplegia in such cases is also raised in order to rule out possibility of criticism.

Discussion opened by E. C. Spitze, East St. Louis.

4:00—"The Effect of Diathermia Upon Deafness," M. R. Guttman and Max Kulvin, Chicago.

This paper will deal with an audiometric survey of about fifty patients that have been suffering from deafness and in some instances from tinnitus also. The effect of medical diathermia upon the hearing is established by comparison of the audiograms taken before and after treatment. The doubtful value of medical diathermia in deafness as well as its uncertain effect upon tinnitus is emphasized.

Discussion opened by Frank J. Novak, Chicago.

4:20—"Orbital Cellulitis and Abscess from Sinusitis," Howard C. Ballenger, Chicago.

This paper consists in an analysis of all cases of orbital cellulitis and orbital abscess seen at the Children's Memorial Hospital, Chicago, from 1923 to 1930, inclusive. From the records these complications and especially orbital abscess, are not so common as is popularly supposed. A resume of the medical and surgical treatment is given.

Discussion opened by T. C. Galloway, Evans-ton.

4:40—"Ophthalmia Neonatorum," N. K. La-zar, Chicago.

The paper will deal with the bacteriological types, prophylaxis and treatment of ophthalmia neonatorum. It is based on a study of 80 cases of ophthalmia neona-torum, representing approximately 4,000 births.

Discussion opened by C. S. Turner, Peoria.

5:00—"Edema of the Larynx: Its Etiology and Treatment." Lantern demonstration. C. D. Sneller, Peoria.

Edema of the larynx is an objective clinical phe-nomenon and not a disease. Certain definite types may be differentiated. Etiologically it may arise 1. because of conditions occurring within the larynx, 2. secondary to inflammation of structures adjacent to the larynx, or 3. associated with systemic diseases. The high mor-tality is primarily because of too long delay in direct relief of the laryngeal edema.

Discussion opened by W. A. McNichols, Dixon.

6:30—Annual banquet of the section with illustrated lecture by Dr. Richard L. Sutton, Kansas City, Missouri, on "Big Game Hunt-ing."

Wednesday Morning, May 6, 1931

1:00—"Refinements in Surgery of the Tonsils including Electro-Surgery." (illustrated by mo-tion pictures), F. B. Balmer, Chicago.

Electro-coagulation is a method par excellence for the removal of post-operative tonsillar tissue, etc., growths and malignancies. In cases accompanied by serious involvement of the heart, lung and kidneys; vascular dyscrasias; syphilitics, aged and infirm, and in those adults who refuse the usual surgical removal. It is a safe, tedious, time-consuming, ultra-conservative procedure requiring judgment, technical skill, patience and meticulous care.

Discussion opened by Austin A. Hayden, Chi-cago.

9:20 — "Electro-Surgical Extirpation of the Tonsils in the Tuberculous. Preliminary Report." A. R. Hollender, Chicago.

It is generally recognized that surgical tonsillec-tomy is a contra-indicated procedure during active pulmonary tuberculosis. This study is based on electrosurgical extirpation of the tonsils in all classifications of pul-monary tuberculosis. Observations, final results, and conclusions.

Discussion opened by Francis L. Lederer, Chi-cago.

9:40—"The Avoidance of Complications in Tonsillectomy," Jerome W. Hayden, Chicago.

Complications of tonsillectomy both local and general, while not of frequent occurrence, do occur. These com-

plications oftentimes of a very serious import and arise in cases that are presumably normal preoperatively. Serious or even fatal trouble may often be avoided by a more thorough history and examination before oper-ation.

Discussion opened by Ralph H. Woods, La-Salle.

10:00—"Choked Disc and Optic Neuritis." A photographic demonstration. Arthur J. Bedell, Albany, N. Y. (By invitation.)

11:00—"Experiences with Chronic Deafness," W. V. Mullin, Cleveland, Ohio. (By invitation.)

Wednesday Afternoon, May 6, 1931

General Session, Shrine Temple

1:15—Aviation Medicine, with Special Ref-erence to the Special Examinations, Col. Louis H. Bauer, former medical director, Bureau of Aeronautics Department of Commerce, Hemp-stead, Long Island, N. Y. (By invitation.)

This address will be given at a General Ses-sion, immediately preceding the Oration in Surgery.

2:00—Oration in Surgery. (General Session.)

Immediately following the Oration in Surgery, the members of this section will be provided with transportation to the new McMillan Hospital, the Eye, Ear, Nose and Throat Department of the Washington University School of Medicine, St. Louis, where the section will be guests of Dr. Howard and Dr. Dean.

SECTION ON PUBLIC HEALTH AND HYGIENE

Chas H. Miller, *Chairman*.

Arlington Ailes, *Secretary*.

Tuesday Afternoon, May 5, 1931

Shrine Temple

Joint Meeting with Sections on Medicine, Surgery and Radiology. Program by Guest Speakers.

1:00—"Heart Disease—Prevention and After Care," I. C. Riggin, Executive Secretary, Ameri-can Heart Association, New York City.

1:45—"Diagnosis of Spinal Cord Lesions," Ernest Sachs, Professor of Neurologic Surgery, Washington University School of Medicine, St. Louis.

2:30—"Recent Developments in Tularemia," Walter M. Simpson, Dayton, Ohio.

3:15—"The Roentgen Examination," Edward H. Skinner, Kansas City.

4:00—"Facts Concerned in Gall Bladder Evacuation" (illustrated by motion pictures),

A. C. Ivy, Professor of Physiology, Northwestern University Medical School, Chicago.

4:45—"Our Present Conception of the Pathological Processes Caused by Intestinal Obstruction and Some of Its Clinical Applications," Willis D. Gatch, Professor of Surgery, University of Indiana Medical School, Indianapolis.

Wednesday Morning, May 6, 1931

8:30—Some Experimental Work in Anterior Poliomyelitis, H. J. Shaughnessey, Springfield.

8:50—Treatment of Anterior Poliomyelitis with Immune Serum, H. A. Orvis, Winnetka.

The essayist will review some of the recent literature on the use of immune serum in the treatment of Poliomyelitis. Some observations in the cases with and without serum during the past year. A discussion of the responsibility of both departments of health and practitioners to make both donors and serums available to the general profession.

Discussion opened by Lloyd Arnold, Chicago.

MENTAL HYGIENE SYMPOSIUM

9:30—"The Relationship between Mental Deficiency and the Field of General Medicine," (illustrated by motion pictures), Groves B. Smith, Beverly Farm.

This paper will embrace the practical importance of mental deficiency in the daily practice of a physician, the importance of early recognition and treatment of the organic injuries to the central nervous system, the importance of specialized education and the sociological consideration as in the light of the present day information. The paper will be supplemented by a moving picture demonstration of cases illustrating certain aspects of the subject.

10:00—"Mental Hygiene in the Home," Frank Parsons Norbury, Jacksonville.

The family is the social unit of human relations. Mental Hygiene as a science in its application to individual, family and community behavior problems, has a strategic point of attack which aids in tracing effect to cause. The philosophy and technic of family mental hygiene, justifies its application as a special service coming within the purview of medical service.

10:20—Facilities for Treatment of Mental Disease and Cost, Charles F. Read, Elgin.

11:00—Diagnosis—Clinical Demonstration of Causes of Mental Diseases, Ralph C. Hamill, Chicago.

Wednesday Afternoon, May 6, 1931

3:00—Modern Psychiatry and Criminology, Meyer Solomon, Chicago.

Modern Psychiatry is interesting, not merely in institutional psychiatry, but also in all behavior prob-

lems, including the problems of criminology. Psychiatry's contribution to criminology includes the detection and separation of the mentally deranged and mentally retarded, suggestions in the disposition of other mal-adjusted personalities, advice in probation and parole cases, the more intensive individual study of delinquents and criminals with an estimate of probable causes, outcome and recommendations for management. The basis of the psychiatric approach is a professional, progressive, scientific attitude toward the problems of criminology, the ideal goal and practical suggestions are given.

3:20—Shall Mental Disease Come Under Public Health Regulation, Arnold H. Kegel, Commissioner of Health, Chicago.

3:40—Heat Therapy in Paresis, Sidney Wilgus, Rockford.

4:00—Discussion—Symposium.

1. Diagnosis, F. J. Gerty, Chicago.

2. Prevention, W. A. Evans, Chicago.

3. Care, H. Douglas Singer, Chicago.

4. Crime, Judge John P. McGoorty, Chief Justice, Criminal Court of Cook County, Chicago. Judge Sonstebly, Municipal Court, Chicago. Arnold H. Kegel, Commissioner of Health, Chicago.

Thursday Morning, May 7, 1931

8:30—Public Health Aspects of the Cancer Problem, Roswell T. Pettit, Ottawa.

Cancer is increasing at an alarming rate; 47 per cent. in men and 21 per cent. in women in less than 25 years. Certainly of sufficient importance to attract the attention of public health agencies. Is this increase due to

(a) More efficient control of infectious diseases? or

(b) Actual increase?

Can better methods of diagnosis and treatment be applied?

Discussion opened by Gilbert Fitzpatrick, Chicago.

9:00—Aspects of Medical Quackery, Henry R. Krasnow, Chicago.

Three aspects:

1. Scientific—Diagnosis and treatment.

2. Social—Involving welfare of the group.

3. Economic—Financial condition of patient, the income of the physician.

Extent of victimization of the public.

Trends in quackery and reasons therefor.

Necessity for control—agencies which should cooperate—outlook for success.

Discussion opened by Arthur J. Cramp, American Medical Association, Chicago.

9:30—Factors in Tuberculosis Which Make It a Public Health Problem, D. D. Monroe, Edwardsville.

Discussion opened by R. W. Dunham, Ottawa.

10:00—Value in Bedside Nursing in a Public Health Program, Margaret McGreevy, R. N., LaSalle.

Families and physicians appreciate the care of their sick given by public health nurses in the home. Our experience in our Health Department shows that good bedside nursing has resulted in better all-around cooperation for all other phases of public health education. This definite relationship has much to do with the success of our prenatal, infant welfare, preschool and school program.

Discussion opened by Mrs. Irene McCullough, Director of Nurses, Metropolitan Life Insurance Company, Chicago.

10:30—"The Medical Profession and the Health Department," Allen J. McLaughlin, Chicago.

Establishment of the ideal relation between doctor and Health Department will effect the solution of certain fundamental Public Health problems which are now unsolved. The problems are:

1. Maternity and infancy.
2. The pre-school child.
3. Preventive treatment of the patient with slight or no symptoms.
4. The cost of medical care.
5. Better distribution of young graduates.
6. Prevention of State Medicine.

Election of officers of the Section for 1931-32.

SECTION OF RADIOLOGY

Shrine Temple

Henry W. Grote, *Chairman*.

E. L. Jenkinson, *Secretary*.

Tuesday Afternoon, May 5, 1931

Joint Session with Sections on Medicine, Surgery, Public Health and Hygiene.

Program by Guest Speakers.

1:00—"Heart Disease—Prevention and After-Care," I. C. Riggin, Executive Secretary, American Heart Association, New York City.

1:45—"Diagnosis of Spinal Cord Lesions," Ernest Sachs, Professor of Neurologic Surgery, Washington University School of Medicine, St. Louis.

2:30—"Recent Developments in Tularemia," Walter M. Simpson, Dayton, Ohio.

3:15—"The Roentgen Examination," Edward H. Skinner, Kansas City.

4:00—"Facts Concerned in Gall Bladder Evacuation" (illustrated by motion pictures), A. C. Ivy, Professor of Physiology, Northwestern University Medical School, Chicago.

4:45—"Our Present Conception of the Pathological Processes Caused by Intestinal Obstruction and Some of Its Clinical Applications," Willis D. Gatch, Professor of Surgery, University of Indiana Medical School, Indianapolis.

Wednesday Morning, May 6, 1931

1. "Early Recognition of Gas Bacillus Infection by X-Ray," Harry A. Olin, Chicago.

All crushing injuries and compound fractures should be suspected of possible gas bacillus infection. Prophylaxis consists of combined anti-gangrenous and antitetanic serum. X-ray findings are emphasized, especially early recognition by Roentgenograms in the first 24 hours. As infection is menace to life and limb 400 CC of combined serum intravenously is advocated as a dose in doses of 50 CC every eight hours. Bacteriology, treatment and summary are given with a report of two cases.

Discussion opened by G. E. Morgan, Mattoon.

2. "Factors Concerned in Radiation Therapy of Malignant Disease," L. R. Sante, Professor of Radiology, St. Louis University, St. Louis, Missouri. (By invitation.)

The factors influencing the successful irradiation of malignant disease are outlined and discussed. Size, extent and location of tumor growth a vital consideration in its treatment. The degree of radiosensitiveness of the individual tumor cells is a condition over which we have no control and one which largely determines our success or failure in radiation therapy. Attacking a growth by interference with its nutrition is sometimes successful even on resistant growths. Influence of environment on cell nutrition as determining factor in ultimate destruction of tumor cells. A practical working formula for the irradiation of malignant disease is described.

Discussion opened by E. L. Jenkinson, Chicago.

3. "The Present Status of the Treatment of Carcinoma of the Uterine Cervix, a Resumé of Methods Used and Results Achieved in Leading European Clinics," Roswell T. Pettit, Ottawa.

In cancer of the cervix it has been definite demonstrated that radium is of greater value than radical surgery. With the improvement in methods as proven by careful statistical study of thousands of cases the permanent cures reported are greater each year,—now better than 30 per cent. Methods employed and results achieved in leading European clinics will be discussed.

Discussion opened by Henry Schmitz, Chicago.

4. "X-Ray Aspect of Gastric Carcinoma," James T. Case, Chicago.

Discussion opened by C. U. Collins, Peoria.

5. "X-Ray Findings in Pneumoconiosis," F. Flinn, Decatur.

Discussion opened by B. H. Orndoff, Chicago.

6. "The Present Status of Penetrating X-Rays and Radium in Deep-Seated Cancer and Other Diseases," Edwin C. Ernst, St. Louis, Missouri. (By invitation.)

The modern possibilities of the use of high filtered x-rays and radium will be discussed with special reference to the indications and applications to every day medical problems. In the light of recent radiological researches the favorable and unfavorable responses of benign and malignant tumors to this type of highly filtered radiation energy will be given equal consideration.

Discussion opened by W. G. Bain, Springfield.

7. "Evaluation of Radiology in Pediatrics," Gerald M. Cline, Bloomington.

This subject includes diagnostic roentgenograms of usual and unusual cases encountered in routine Pediatric practice. Case records will be exhibited by slides and descriptions, especially with follow-up records. Such cases will include diseases of the new born,—cases of malnutrition, chest pathology, abdominal, and bone pathology.

Discussion opened by Harold Swanberg, Quincy.

Thursday Morning, May 7, 1931

1. "Roentgenotherapy of Conditions Other Than Malignancy," I. S. Trostler, Chicago.

Discussion opened by E. G. C. Williams, Danville.

2. "The Value of X-Ray Therapy in Malignant Diseases," Cassie B. Rose, Chicago.

This paper is a discussion of the palliative relief which may be obtained by moderate doses of radiation therapy in both primary and metastatic malignancy, particularly in the case of bone lesions. Recalcification in bone. Relief of clinical symptoms. Prognosis. Technique of treatment. Illustrative cases. Lantern slides.

Discussion opened by I. S. Trostler, Chicago.

3. "Treatment of Breast Carcinoma," Benjamin H. Orndoff, Chicago.

Discussion opened by J. K. P. Hawks, Bloomington.

4. "The Relation of Biological Effect to Effective Wave Length and Portal Size," E. G. C. Williams, Danville.

The dependence of biological effect upon wave length and portal size in x-ray therapy is shown in the possibility of increasing dosage as the wave length is shortened and the decreased skin tolerance as portal size is increased. These changes are controlled by the amount

of radiation absorbed and increase of long wave length effect from back scatter.

Discussion opened by Perry Goodwin, Peoria.

5. "X-Ray Therapy in Skin Diseases," Arthur W. Erskine, Cedar Rapids, Iowa. (By invitation.)

A discussion of the physiological action of radiation. The selection of Dermatological conditions suitable for treatment by x-rays based upon their action. Precautions. The advantages of a simplified technique. Results to be expected from x-ray therapy in a few common skin diseases.

Discussion opened by M. F. Engman, Professor Clinical Dermatology, Washington University School of Medicine, St. Louis. (By invitation.)

6. "Phrenicoexeresis in the Treatment of Pulmonary Tuberculosis," George M. Landau, Chicago.

The essayist believes that in the treatment of unilateral pulmonary tuberculosis, that treatment of choice should be Phrenicoexeresis, it being by far superior to artificial pneumothorax with its attending hydrothorax and contrary to belief, high mortality rate. The curative results thus far obtained far outweigh the objection of a permanently paralyzed one-half diaphragm.

Discussion opened by Jerome Head and Otto Schlack, Chicago.

7. "X-Ray in Diagnosis of Thoracic Pathology," Hermon Harrison Cole, Springfield.

1. General discussion of (1) General practice, (2) Group Medicine, (3) Limited specialization.

2. Place of the Roentgen Ray in diagnosis of chest conditions. Its use and abuse.

3. Limitations of physical examination and of x-rays. Danger of attempting too much from insufficient evidence.

4. Writer's general rules in the Use of X-Ray. A resume of experience both good and bad.

8. "The Roentgen Diagnosis of Bronchiectasis," Adolph Hartung, Chicago.

Roentgen findings depend on stage of development and type and location of lesions. Vary from such uncertain signs as increase of the linear markings and irregular densities to almost pathognomonic honey-comb appearance. In conjunction with clinical findings they should lead to a correct diagnosis. Iodized oil injections confirmatory and show location and extent of lesions.

Discussion of these papers opened by L. R. Sante, St. Louis. (By invitation.)

RULES GOVERNING THE PRESENTATION OF PAPERS

All papers read by members shall be limited to twenty minutes and remarks in discussion to

five minutes, floor privilege being allowed only once for the discussion of any one subject.

All papers read before the Society or any of its Sections shall become the property of the Society. Each paper shall be deposited with the Secretary of the Section when read and the presentation of a paper to the Illinois State Medical Society shall be considered tantamount to the assurance on the part of the writer that such paper has not already appeared and will not appear in medical print before it has been published in the *ILLINOIS MEDICAL JOURNAL*.

A paper not heard in its scheduled turn shall be held subject to the call of the Chairman of the Section at the end of the regular session if time permits, or as an alternative at the end of the program.

All discussions shall be confined strictly to the subject in hand.

No paper shall appear in the printed transactions of the meeting unless read in full or in abstract.

(From the By-Laws of the Illinois State Medical Society.)

EXHIBITORS AT 1931 ANNUAL MEETING

American Medical Association, 535 North Dearborn Street, Chicago.

A. S. Aloe Company, 1819 Olive Street, St. Louis.

Chicago Health Department, Chicago.

DePuy Manufacturing Company, Warsaw, Indiana.

DeVilbiss Company, Toledo, Ohio.

Dick X-Ray Company, St. Louis.

General Electric Corporation, Jackson Blvd. & Robey St., Chicago.

Gerber Products Division, Freemont Packing Company, Freemont, Michigan.

Horlicks Malted Milk Corporation, Racine, Wisconsin.

Huston Brothers Company, 185 North Wabash Avenue, Chicago.

Illinois Department of Public Health, Springfield.

Illinois Society for Mental Hygiene, Chicago.

Illinois Tuberculosis Association, Springfield.

Kellogg Company, Battle Creek, Michigan.

Loyola University School of Medicine, Chicago.

W. W. McMaster, Peoria.

Mead Johnson & Company, Evansville, Indiana.

Medical Protective Company, 360 North Michigan Blvd., Chicago.

Mellin's Food Company, 177 State Street, Boston, Mass.

V. Mueller & Company, Ogden Avenue & VanBuren Street, Chicago.

Petrolagar Laboratories, 536 Lake Shore Drive, Chicago.

Chas. H. Phillips Chemical Company, 170 Varick Street, New York City.

Post Graduate School of Surgical Technique, Chicago.

W. B. Saunders Company, West Washington Square, Philadelphia.

Section on Radiology, Illinois State Medical Society.

Sharp & Smith, 65 East Lake Street, Chicago.

S. M. A. Corporation, Cleveland, Ohio.

Tailby-Nason Company, Boston, Mass.

University of Illinois School of Medicine, Chicago.

U. S. Fidelity & Guaranty Company, St. Louis.

Vilray P. Blair, St. Louis.

Washington University School of Medicine, St. Louis.

SCIENTIFIC EXHIBITS

We expect to have the finest scientific exhibits at the meeting, that we have yet had. The list, and definite showing, yet incomplete.

The American Medical Association will exhibit some very interesting material to show what the Association is doing not only for the Medical Profession, but also showing what it is doing to protect the citizens of our Country.

Council on Pharmacy and Chemistry: Posters and specimens illustrating the efforts of this Council in the interests of scientific medicine and rational prescribing.

American Medical Association Chemical Laboratory: Posters and specimens bearing on such subjects as newer synthetics, comparative prices of proprietary and non-proprietary remedies, and drug control.

Bureau of Investigation: A series of educational posters on the nostrum evil and quackery prepared by the Bureau for the use of physicians, health officials, schools and colleges.

Council on Medical Education and Hospitals: Posters and charts on hospitals for nervous and mental diseases.

Bureau of Health and Public Instruction: Charts and posters of the health education series, of infant welfare series and how the doctor prevents disease.

Bureau of Legal Medicine and Legislation: Posters showing the activities of the Bureau, extent of medical defense activities of constituent associations,—states having basic science requirements,—states having annual registration requirements,—states providing for eugenic sterilization of the feeble-minded.

American Medical Association Library: Graphic demonstration by charts and posters of the various services rendered by the library to the individual physician. An exhibit of the *Quarterly Cumulative Index Medicus*, specimens illustrating the reference service, samples of package libraries and periodical lending service.

Council on Physical Therapy: Posters, apparatus and charts demonstrating ultra-violet light.

These are among the many interesting things to be shown in the scientific educational exhibit of the American Medical Association.

The Illinois State Department of Public Health will show many interesting things which the State Health Department is doing to protect the health of the citizens of Illinois. Several of these large exhibits have been built jointly by the State Department of Health, and the University of Illinois College of Medicine. The

first of these exhibits was shown at the annual meeting in Joliet last year, showing the various manifestations of Pneumonia. This exhibit will be shown again this year, and in addition, similar exhibits will be shown on Typhoid Fever, Tuberculosis, Diphtheria, Pneumonia and Cancer.

In addition to these excellent exhibits, the Department will display and demonstrate the State Department's Laboratory Facilities.

These interesting exhibits have been procured for this meeting through the cooperation of the Section on Public Health and Hygiene of the Illinois State Medical Society.

The University of Illinois School of Medicine will join with the State Department of Health in showing these interesting exhibits mentioned above. Other interesting exhibits will be shown by our University Medical School, and will be in charge of Department heads, from that school.

The Illinois Society for Mental Hygiene will have an interesting exhibit which will be in charge of Helen L. Myrick. This will exhibit many interesting things in connection with the Mental Hygiene activities, and has been arranged in conjunction with the Section on Public Health and Hygiene.

The Chicago Health Department will display an interesting exhibit which will be in charge of the City's Health Commissioner, Dr. Arnold H. Kegel, of Chicago.

Loyola University School of Medicine is planning a highly interesting scientific exhibit, from the departments of that school.

The Illinois Tuberculosis Association has planned an interesting exhibit showing the work which has been done to check the ravages of the Great White Plague. The exhibit will be in charge of the executive Secretary of that Association, Mr. W. P. Shahan, Springfield.

Dr. Vilray P. Blair, of St. Louis, has arranged an interesting exhibit showing the newer methods in plastic surgery. The exhibit consists of interesting charts and illustrations of these procedures, along with wax models to illustrate the interesting points in connection with the work.

Washington University School of Medicine, St. Louis, is planning to have several of their departments represented with interesting scientific exhibits. The details have not yet been announced, but they will be given in the official program.

There will be a considerable number of other interesting scientific exhibits shown, which will add greatly to the value of this type of visual education to the Medical Profession of Illinois.

NOTES ON EXHIBITS

A. S. Aloe Company, 1819 Olive Street, St. Louis, Missouri, will exhibit at the 81st Annual Meeting of the Illinois State Medical Society with a complete line of Chrome Plated Instruments. Of special interest to general practitioners will be the whoeing of the new "Salerni" High Colonic Irrigator and the new Scherck Examining and Irrigating Cystoscope. The Aloe Company, with general office, retail store and factory located

just 20 minutes from the convention, extends a cordial invitation to physicians attending this convention to visit their store while in the city. Transportation will be provided to all who apply at the Aloe booth.

De Puy Manufacturing Company, Warsaw, Indiana, invites your attention to Aluminum X-ray Splints, Fracture Bed, Frames and equipment for the Fracture Surgeon.

De Puy has served the profession for thirty-five years and has constantly bent all its effort to perfect fracture appliances to meet the approval of the most critical doctor.

Ask your friends to see the De Puy Equipment at Booth No. 22. Mr. W. D. Bates will be in charge. No high-pressure methods used.

The DeVilbiss Company, Toledo, Ohio, manufacturers of Atomizers and Vaporizers for home and office use, have reserved space No. 50 at the meeting of the Illinois State Medical Society to be held May 5th, 6th and 7th, 1931, in the Shrine Temple, East St. Louis, Illinois.

The DeVilbiss Company has, in the past year, made many improvements in their line of Atomizers. New models have been added which will be of interest to the profession. These will all be shown at the 81st Annual Meeting of the Illinois State Medical Society.

The Dick X-Ray Company of St. Louis will have an excellent display of the well known Keleket X-Ray apparatus. Burdick Ultra Violet Quarts Lights and Burdick Zoolites. The exhibit is attractive and this well known company will welcome their many old friends and all other visitors who call on them.

The General Electric X-Ray Corporation exhibit will consist of the new Model 17-75 Diagnostic X-Ray Unit. This design takes into consideration the average requirements of many practicing physicians and smaller hospitals who desire diagnosis, capable of doing a strictly high quality of work and yet representing a moderate investment.

It is a compact, self-contained X-Ray Unit incorporating an All-Metal Bucky Table, Victor curved Bucky Diaphragm, tube stand, 30 M. A. Radiator Type X-Ray Tube, Patterson Fluoroscopic screen, Vertical Fluoroscope, control stand and transformer.

Strained Vegetables for infant feeding and special diets will be exhibited by Gerber Products Division of the Freemont Canning Company, Freemont, Michigan. These products have gained wide acceptance by the medical profession and the trade during the two and one-half years since being introduced.

Strained, unseasoned, specially prepared, these products are of unusual interest because they offer the physician an opportunity for more perfect control of infant diets and insure uniform, properly prepared feedings.

Visitors at the booth will be given any information wanted concerning the manufacture of the product and will be given an opportunity to register for samples and full detailed information of special interest to the profession.

Have you found how grateful patients are for the

suggestion of Horlick's Malted Milk Tablets as a relief from the sameness of the Liquid Diet?

They have the same nourishing and remarkably digestible qualities as the powder form, possessing all the goodness of full-cream milk, choice wheat and malted barley.

Horlick's the Original Malted Milk, natural and chocolate flavors, both in powder and tablet form, and Horlick's Milk Modifier, a maltose and dextrin product, will be featured at the Horlick booth, No. 31.

The exhibit of the firm of Wm. W. McMaster, Physicians, Surgeons and Hospital Supplies, 126 N. Adams Street, Peoria, Illinois, will be in booth No. 41. This is the third year that this Central Illinois drug and supply house has been represented at the State Convention, and their exhibit will include the showing of a representative line of surgical instruments, blood pressure apparatus, diagnostic and laboratory equipment, electro-therapeutic equipment, physicians bags, standard lines of pharmaceuticals and biologicals of which they are authorized distributors, and pharmaceuticals of their manufacture.

This firm recently suffered a complete loss of their business by fire, but is now located in their new store which has been completely rebuilt and restocked with practically everything which the general practitioner or the specialist may need.

Mead Johnson & Company will have on exhibit its complete line of infant diet materials including Mead's Dextri-Maltose, Mead's Cod Liver Oil, Mead's Vios-terol, Mead's Recolac, Mead's Non-Curdling Powdered Protein Milk, Mead's Non-Curdling Powdered Lactic Acid Milk and Mead's Powdered Yeast. Mead's Cereal will be introduced. A Cereal rich in vitamins and mineral will undoubtedly be received with deep interest by physicians.

There will also be for the examination of physicians a complete line of Mead's services such as diets for older children, height and weight charts, etc., all of which are free to members of the medical profession in any quantity desired. Representatives will be on hand to meet their friends and to discuss the application of any of the Mead products to infant feeding problems.

An exchange of ideas and opinions relative to the feeding of infants and in regard to the preparation of nourishment for adults requiring a restricted diet are of much value, particularly in view of the recognized importance of selecting food material best adapted to the individual requirement. The Annual Session of the Illinois State Medical Society affords an opportunity for such discussion and not only in the various sections but in the exhibit hall where representatives of the Mellin's Food Company will await physician's questions and be ready to discuss the subject matter from the maker's viewpoint. Members of the Society are cordially invited to call at Space No. 21.

Full information and illustrated folders of the Scientific Medical Motion Pictures supplied by Petrolagar Laboratories may be obtained at the Petrologar display.

This splendid library of films have achieved inter-

national repute and is well known by practitioners throughout the United States and Canada. The complete list now comprises twelve exceptionally instructive subjects.

Presentations before accredited medical groups may be arranged at any place or date, without charge.

At Booth No. 30, The Chas. H. Phillips Chemical Company will display Phillips' Milk of Magnesia, the ideal laxative antacid, and Phillips' Dental Magnesia, the milk of magnesia tooth paste. You are cordially invited to inspect these products and receive samples.

W. B. Saunders Company, Medical Publishers, Philadelphia and London:

These publishers will have accessible for examination a complete list of their books. Outstanding among the newer of these are Andrews' Diseases of the Skin, new edition of Da Costa's Modern Surgery, Da Costa's Papers and Speeches, Curtis' Gynecology, Kaplan's Radiation Therapy, Moorhead's Traumatotherapy, Webster's Legal Medicine and Toxicology, new edition of Cecil's medicine, new edition of Howell's Physiology, new edition of McLester's Nutrition and Diet, new edition of Todd and Sanford's Clinical Diagnosis by Laboratory Methods. In addition undoubtedly those attending the convention will be interested in Evarts Grahams three volume work on Surgical Diagnosis and Blumers three volume work on Bedside Diagnosis, Beckmen's Treatment, Jackson and Coates on the Nose, Throat and Ear, Maximow's Histology, Areys Embryology, and many other standard books on medicine, surgery and the specialties.

Sharp & Smith of 65 East Lake Street, Chicago, Illinois, will have a very interesting exhibit at the 81st Annual Meeting of the Illinois State Medical Society. Physicians and surgeons interested in the latest developments in instruments will find it well worth while to visit the Sharp & Smith exhibit while they are at this meeting. Of particular interest will be the new Intestinal Anastomosis Clamp designed by Fred Rankin, M. D., F. A. C. S., the Hodlick Needle Holder, the Stein-Arens Tubal Patency Set, etc.

The Kellogg Company of Battle Creek, Mich., will exhibit their well known line of preparations, which are used in normal and special diets. Representatives of this company will be present to give any desired information concerning their products, and they will be pleased to hand out Diet Suggestions and Prescribed Diet lists to all who care for them.

Huston Brothers Company, one of the oldest Surgical Instrument houses in the country, will have an interesting exhibit, which will appeal to those in General Practice, as well as those in the various specialties. They will present many new instruments and appliances, and also have a general line of many things the man in practice needs daily.

Tailby-Nason Company, of Cambridge Massachusetts, will have an interesting display, featuring their well known "Nasons Palatable Cod Liver Oil," the kind that tastes better, and yet has the potency to be expected from such a product. Scientific data will be shown to prove the value of their product in the treat-

ment of many conditions seen by the physician in his work. Representatives of this well known company will be in attendance to answer any questions that may be asked concerning their products, and to greet the members and visitors at the meeting.

The United States Fidelity and Guaranty Company will have an exhibit in charge of their St. Louis agency. Their service to physicians will be explained in detail, and their representatives will be glad to show any features of the protection afforded by this company.

V. Mueller & Company of Chicago will have a large exhibit of more than general interest. Many new patterns of surgical instruments have been developed during the past year, and these will be displayed in the exhibit. V. Mueller & Company always deem it a privilege to show their many instruments to physicians who will take the time to look them over and believe that it is decidedly to the advantage of everyone at the meeting to call and see their unusual exhibit.

The Medical Protective Company of Chicago is well known to all physicians of Illinois and adjacent States. Representatives of the company will be present to say "hello" to their many friends, and to give any information desired on their policies to protect against malpractice. You may feel free to call on them for any information desired, and to make their booth your loafing place, any time you want a place to sit down.

The S. M. A. Corporation of Cleveland will exhibit their well known line of products, calling special attention to the applicability of same in infant feeding. This well known company, formerly the Laboratory Products Company, specialize in "Fine Products for the Infant Diet," and they will be pleased to have you call at their booth for information relative to their products.

Correspondence

WORK OF THE EDUCATIONAL COMMITTEE OF THE ILLINOIS STATE MEDICAL SOCIETY IS MUCH APPRECIATED

Daytona Beach, Fla., Feb. 28, 1931.

To the Editor:

The Florida State Medical Association is outlining a state wide movement of medical education, particularly for the laymen.

As executive secretary to our Executive Board, I have been asked to request your co-operation in formulating plans. We understand that Illinois State Medical Association has the best system, and is achieving considerable success in a similar movement.

We would appreciate any of your data that you think valuable, and any ideas that you have used with good effects, or any suggestions that you may be contemplating to use that might be

incorporated in a new undertaking such as ours.

Thanking you for your co-operation, I am,

J. RALSTON WELLS, M. D.,

(Executive Secretary, Executive Board).

WE NEED A GREATER GENERAL PRACTITIONER. WE ALSO NEED A CONTINUED STIMULUS TO ENCOURAGE ALL TO WORK TO BRING ABOUT THIS IDEAL CONDITION

Los Angeles, Calif., Feb. 26, 1931.

To the Editor: I watched the ILLINOIS MEDICAL JOURNAL scrupulously. I wish to congratulate the party who wrote the editorial in the January number on Post-Graduate Study. Just why the profession should be so apathetic in Chicago I never could quite understand. At one time Dr. Thomas P. Foley of the Lawndale Branch of the Chicago Medical Society had a paper in the Bulletin on "Do the Leaders Lead and if So Where?" I have been watching the course of affairs in Chicago to see if there are any who attempt constructive work. Dr. Charles B. Reed, Dr. Irving S. Cutter and the editorials in the ILLINOIS MEDICAL JOURNAL are indicating that something is about to happen. I hope that the editorial in the January number will bear fruit.

Why not make an appeal to the profession to contribute a sum sufficient to buy outright the Public Health Institute? Here they demand one hundred dollars to join the Los Angeles County Medical Society and they have built a fine office building and they have two other buildings from which the society derives a revenue.

Conditions here in Los Angeles are perhaps the worst in the U. S. because the *Los Angeles Times* have a sheet in their Sunday Edition that brings in a large revenue in fake advertising and the *Times* uses every means to discredit legitimate medicine while doing all they can to encourage quackery and cults because of the revenue influence from that source while they of course derive nothing from legitimate medicine.

Now in 1912-14 while I was temporary secretary of the Committee on Medical Charity of the Chicago Medical Society I reasoned that the only solution was to give the Dispensary patient the best of service but use them to educate and re-educate and constantly educate the profession.

Osler believed that every doctor ought to post at least one in five years and Rear Admiral Stitts in his Los Angeles address last fall said he thought the old practitioner ought to take a course at least once a year.

Personally I believe that the most essential thing for the profession to do is to encourage post-graduate work. It is a fact that many of the old practitioners have fallen down or in other words failed to keep in step with medical progress. I find that I have to work to keep up and in many respects I find myself rusty on many things I felt proficient in five years ago. However, I feel resentful to go to a post-graduate institution that takes patients who can afford to pay better than I could and treat them free while I am made to pay a big fee to see my patient or some other doctor's patient taken away from them in this way depriving him of an honest living.

Indications are that the five year cost study will bring about an attempt to have the public pay in advance for their health service and those who can not do so to be treated in free institutions. Now why not anticipate this and have the doctor pay a certain amount as membership fee in his medical society and a part of this go towards a fund for his post-graduate tuition. I am inclined to think that if the doctors do not make an effort to encourage post-graduate study that the State will do it later on. Certainly we need a greater general practitioner and we need a continued stimulus to encourage all to work for a higher manhood and womanhood.

I believe Harris' suggestion for a separate society to discuss business and social problems is indicated. Such a society could help to send more men to congress, to legislatures, to city councils, etc. Such a society could take care of malpractice insurance and many other problems. The revenue paid out ought to go entirely for the benefit of the profession. Physicians' fellowship clubs or societies are already in existence in many cities.

At any rate I wish to show my appreciation and offer all the encouragement I may to the party responsible for that editorial.

D. S. HAGER, M. D.
Bennett, 1898.
Rush, 1900.

EITHER THE PROFESSION WILL HAVE TO CONTROL THE CLINICAL WORK OR THE CLINICAL WORK WILL CONTROL THE PROFESSION

Los Angeles, Calif., March 15, 1931.

To the Editor: I watch the ILLINOIS MEDICAL JOURNAL and have noted your social proclivities. Your editorial should mean something considering the general conditions as they are unfolding at the present time; they are near or should be near to the heart of every graduate of medicine.

That medicine is going to make a change in the near future you will readily agree. No doubt the storm is just gathering and will not arrive until after the five year cost is completed but something should be planned now. Your editorial is pointing to a direction. Each year I have seen an attempt being made to push the old practitioner to the rear and the organized medical schools push their recent graduates to the front.

The present idea that a year's internship will make a proficient practitioner of medicine in my opinion must undergo a change. It is true they learn to write case histories and give anesthetics and when they come out they are looking for big operations. Is there any wonder that the cults thrive. The older men have their living taken away from them? and find their cases in the "clinics" and then they are even asked to pay a big fee to see someone else treat their cases and gain a big reputation. It is equally true that the young graduate says that the big fellows do not treat him fair. Here in Los Angeles a "Fellowship" club or society was organized by ex-internes and younger men; because they claimed the older men did not treat them fair. In California, Colorado and many other states there is a strong sentiment in favor of some change.

The Public Health Institute in Chicago might be a nucleus for such a change. *Either the profession will have to control the clinical work or the clinical work will control the profession.* The young graduate should serve, say three months, in each of the various specialties before he should even be allowed to serve as interne. The hospitals should be the place to learn surgery. Three months in E. E. N. & T.; three months nervous; three months children, etc. To do this, clinical work must be organized and a center established. Physicians and Surgeons College should be en-

tirely under the control of the profession and entirely financed by them. They do what they did here—assess every member one hundred dollars and build up a fund. I will do it but want a hundred dollars worth of benefit from it. It can be done. By increasing the membership dues and using as much as consistent to support the institution. By bequests and endowments and in many ways the profession could be stimulated to higher ideals for the general practitioners. The general man as well as the special man needs post-graduate interest all the time and should be allowed to support his own institution but he should also be given his money's worth in return.

The cults thrive because they take up new ideas and push them. The old practitioners become apathetic because they are constantly undermined and as they have not got the enormous fees that the post-graduate schools demand the older practitioners just "hobble" along and largely forget what they know.

How did —— institution in Chicago thrive but at the expense of the general practitioner? Here in Los Angeles there are a number of institutions that ought to be closed. One a State Institution that does not pay taxes and is supposed to be run as a post-graduate school but in reality is run for the benefit of an Eye, Ear, Nose and Throat firm of doctors. The men on the staff work for nothing. The patient pays for the druggist, superintendent and janitor and the office is used as a feeder for the nose and throat specialist firm. Another institution is run for the benefit of a large Methodist church and no one except those with Methodist church affiliation can be on the staff. Another one is run for the Parent-Teachers Association and all these are used to treat the friends of those who have influence. The city too has a large clinic. Now why not organize and use this material for post-graduate instruction?

Keep punching away and perhaps you may be able to enthuse some ideas into the members of the Illinois Chicago Medical Society that may ultimately mean something.

D. S. HAGER, M. D.

"A LIE NAILED,"

TWO REPUTABLE PHYSICIANS TESTIFY UNDER OATH

A person who says that his name is William A. McCormick, and who claims to live at Onkama, Mich-

igan, who also claims to be an agent and working for the American Medical Liberty League, whose main office is in New York, and which claims to have branch offices in several places in the United States, and which claims to be working and spreading propaganda against "vivisection"—vaccination to prevent smallpox, and all other "serums." The said William A. McCormick was in Canton, Illinois, on May 28, 1929, and was driven out of town for violation of section seven of the Municipal Code. After being fined and forfeiting an appeal bond, that the said William A. McCormick has and is at the present time sending through the mails, and otherwise distributing yellow slips and pamphlets, with the statements that Miss Dollie M. Parks, a principal of the grammar school, died as a result of vaccination to prevent smallpox. The following from two of the attending physicians, is proof that this is lying propaganda.

STATE OF ILLINOIS }
COUNTY OF FULTON } SS.

W. E. Shallenberger, being first duly sworn on oath, deposes and says that he is a regularly licensed physician in the State of Illinois; that he resides at Canton, Fulton County, Illinois; that he has practiced his profession in the City of Canton for more than 30 years, continuously; that on or about April 25, 1929, there appeared in the City of Canton, Illinois, a man who gave his name as William A. McCormick, and stated that he resides in Onkama, Michigan, and who claims to have an office at 1169 Transportation Building, Chicago, Illinois. He likewise claimed that he was employed by and was agent for the American Medical Liberty League, a corporation, with headquarters in New York City and with a branch office at 1169 Transportation Building, Chicago, Illinois. The said William A. McCormick further claims that he is traveling through different states putting out propaganda and working against vaccination for prevention of smallpox, typhoid fever, diphtheria; also against serums of any kind or description for the prevention or cure of any disease. The said William A. McCormick has made statements and distributed literature at divers times and in different places that Miss Dollie M. Parks, residing at 24 West Pine St., Canton, Illinois, died as a result of an attempted vaccination which was made on or about the first week in February, 1929; that the said vaccinating was done by Dr. W. E. Shallenberger of Canton, Illinois.

I hereby certify that the statements sent out and given out by word of mouth and through the mails as literature by the said William A. McCormick of and concerning the death of Miss Parks are false, vicious, malicious and untrue in every respect.

This affiant further states that he and Dr. E. P. Coleman of Canton, Illinois, were the attending physician and consulting physician with Dr. Harry Durkin of Peoria, Illinois; that the said Dollie M. Parks was vaccinated eight or nine years prior to her death and that she had a typical vaccination scar on her left arm; that an attempt was made to vaccinate her on February, 1929, but said attempted vaccination did not take;

that her arm was not sore; that she lost no work; that she had no discomfort, and that the result was only a small, red pimple which entirely disappeared in a few days.

This affiant further testifies that in his opinion Miss Dollie M. Parks died as a result of right lobar pneumonia; that she was taken sick March 27, 1929, and died one week following, April 3, 1929.

This affiant further certifies that the attempted vaccination and the vaccination which Dollie M. Parks had undergone eight years prior to her death had nothing whatever to do with her death.

Dated at Canton, Illinois, this 9th day of December, A. D. 1930.

W. E. SHALLENBERGER.

Subscribed and sworn to before me this 9th day of December, A. D. 1930.

MINNIE M. SHELTON,
Notary Public.

My commission expires February 26, 1934.

STATE OF ILLINOIS }
COUNTY OF FULTON } SS.

E. P. Coleman of the City of Canton, Fulton County, Illinois, being first duly sworn on oath, deposes and says that he is a regularly licensed practicing physician and surgeon in the State of Illinois; that he has practiced his profession in the State of Illinois, continuously, for more than ten years; that he has read and is familiar with the contents of the affidavit made and subscribed by Dr. W. E. Shallenberger of and concerning the death of Dollie M. Parks, residing at the time of her death at 24 West Pine Street, in the City of Canton, Illinois; that the said affidavit of W. E. Shallenberger is true and correct so far as it concerns and relates to the death of the said Dollie M. Parks; that the cause of the death of the said Dollie M. Parks in the opinion of this affiant was lobar pneumonia; and that neither the vaccination of said Dollie M. Parks, seven or eight years before her death, nor the attempted vaccination in February, 1929, contributed in any way to her death.

E. P. COLEMAN, M. D.,
Counsellor 4th Dist.

Subscribed and sworn to before me this 9th day of December, A. D. 1930.

MINNIE M. SHELTON,
Notary Public.

My commission expires February 26, 1934.

ENLIGHTENED SOCIAL SERVICE CAN DO MUCH TO MAKE A HOSPITAL A PLACE OF HOSPITALITY

THE HOSPITAL AND THE PATIENT

Social service is an important feature of the modern hospital. Patients may need something more than patience in the sometimes slow operations of the laws of the natural and physical sciences under the guidance of an enlightened physician or a talented surgeon. In an address before the American Association of Hospital Social Workers, a sympathetic critic* recently

pointed out that amid the medical revolutions of the past centuries with their increasing mass of scientific knowledge the traditional meaning of the word hospital has been largely forgotten. It meant a place of hospitality for those in need of shelter and maintenance, and it was called a "hospital" because those sheltered there were considered, in the Latin, to be *hospes*, or guests. The spirit that makes a patient a guest and the hospital his host should be deeply inculcated. The patient is not merely a "scientific phenomenon" that demands time-consuming attention from a physician, but also a social being. Enlightened social service can do much to "make a hospital a place of hospitality; to insist upon the point of view that the ill human being in hospital is a guest, and not merely a patient."—*Jour. A. M. A.*, March 7, 1931.

ANOTHER ANTI-VIVISECTION BILL AT SPRINGFIELD

The attention of the Illinois Society for the Protection of Medical Research has been attracted by House Bill 453, which was introduced by Representative Bederman (by request) and which has been referred to the Judiciary Committee for consideration.

This bill is an anti-vivisection bill, or an anti-animal experimentation bill.

In 1929 an anti-vivisection bill (Senate Bill 221) was introduced into the Senate of the State of Illinois. The evidence presented against the bill in a committee hearing was so strong that the Antivivisection Society withdrew the bill. A newspaper article quoted their Society as saying that "it is evident that the Illinois Antivivisection Society has failed to convince members of the Senate Public Health Committee that vivisection is what this Society charges, a useless, cruel, and archaic practice," and that "we believe, however, that testimony before Senator Mills' committee conclusively proved that nothing of value has been learned from experiments on dogs."

This change in tactics is that which has been followed by National Antivivisection Societies. Some years ago they introduced a bill into Congress to abolish all animal experimentation. The bill was defeated. They then introduced another "dog bill," and it was defeated. Another "dog bill" was then introduced and it was not reported out of the United States Senate Committee. Obviously such tactics mean "bread and butter" for their paid secretaries and attorneys, but works a hardship on those who oppose such bills who have no paid secretaries and who are opposing the bill in order to protect the public from the deleterious effect that would eventually result.

Before the United States Senate Committee one of their witnesses virtually granted that the "dog bill" was simply an opening wedge to abolish all animal experimentation. They obviously select the dog in this instance because they can make a stronger appeal to sentiment and the emotions.

Much of value has been learned from experiments on dogs. A subcommittee of the Senate Public Health Committee in 1929 visited the laboratories of one of

*Moe, H. A.: What Social Service Means to the Patient, *Hosp. Social Service* 22:470, 1930.

our State Medical Schools, the laboratories of which are always open, and learned first hand that facts of definite and great value have been and are being learned from experiments on dogs and that the dogs are well treated and cared for. The discovery of insulin, which will benefit the lives of one million people living in the United States today was made solely by experiments of dogs. Death from parathyroid tetany no longer occurs, because of experiments performed on dogs. Pernicious anemia can now be controlled as a result of experiments on dogs. The discovery of ethylene anesthesia was made possible in great part through the study of dogs. "Worm medicines" of great value in man have been discovered by experiments on dogs. The causal conditions related to certain anemias, stomach ulcer, dropsy, nervous diseases, heart diseases, liver diseases, etc., have been elucidated through experiments on dogs. Dogs are used extensively in testing drugs before they are given to man because they react so much like the human being. Many other facts of this nature have been discovered which are gradually leading mankind to unravel the mysteries of life and disease. If dogs were useless, why would eminent scientists use them? If their use for experimental purposes were unnecessary, they would use a smaller animal that is less expensive to keep.

It should be pointed out that all dogs used for purposes of experimentation are unclaimed, stray dogs obtained from the Pound that would otherwise be put to death. We kill them humanely, but in doing so learn something that is worth while to humanity at large. No uncontroverted evidence of cruelty and no proof of cruelty is on record as occurring in the recognized laboratories of the State of Illinois. All claims to the contrary are based on incomplete knowledge and too frequently on the misrepresentation of the facts.

It should be pointed out further that adequate laws concerning cruelty to animals exist in the State of Illinois and that the laboratories for animal experimentation throughout the nation have voluntarily adopted a list of "Rules Governing the Care and Treatment of Animals."

We feel confident that the Representatives of the State of Illinois will not be misled by such propaganda, and will deal with all Antivivisection Bills according to the precedent established by the Senate of the United States and of the State of Illinois.

Do not neglect to write your representatives and protest against the passage of Bill 453.

The following is the personnel of the Judiciary Committee of the House:

Adamowski, Benjamin S.	Burns, James T.
2625 Logan Blvd., Chicago.	Kankakee.
Bederman, Edwin B.	Carroll, Wm. M.
5010 N. Drake Ave., Chicago.	Woodstock.
Blackwell, George W.	Church, Ralph E.
21 E. 28th St., Chicago.	300 Church St., Evanston.
Borders, Grover C.	Collins, Dennis J.
East St. Louis.	DeKalb.
Branson, R. J.	Devine, John P.
Centralia.	Dixon.
Bratton, Luther B.	Doyle, Howard L.
Kankakee.	Decatur.

Durso, Michael R.	Nyman, Carl O.
1012 Milton Ave., Chicago.	Rockford.
Edwards, W. O.	O'Grady, Thomas J.
Danville.	851 W. 53rd Pl., Chicago.
Foster, Frank E.	O'Neill, Schaefer
15633 Lexington Ave., Harvey.	Alton.
Gaines, Harris B.	Peffer, John M.
3262 Vernon Ave., Chicago.	Aurora.
Galvin, A. O.	Rennick, Frederick W.
970 Milwaukee Ave., Chicago.	Buda.
Garriott, John C., Jr.	Roderick, Solomon P.
8101 Harper Ave., Chicago.	3104 Douglas Blvd., Chicago.
Giffin, D. Logan	Roe, Arthur
Springfield.	Vandalia.
Gilmore, Wm. E.	Schanckenberg, Elmer J.
Champaign.	6936 Euclid Ave., Chicago.
Green, Leroy M.	Searle, Clinton
Rockford.	Rock Island.
Hennebry, Michael F.	Sinnett, Thomas P.
Wilmington.	Rock Island.
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Bloomington.	Springfield.
King, Wm. E.	Swanson, David I.
4046 S. Parkway, Chicago.	7842 S. Marshfield Ave., Chicago.
Lager, A. B.	Teel, H. V.
Carlyle.	Rushville.
Lawler, Wm. J.	Thompson, Frank G.
Springfield.	Mt. Vernon.
Lewis, F. W.	Thon, William G.
Robinson.	2210 Cortez St., Chicago.
Libonati, Roland V.	Walker, John L.
925 S. Halsted St., Chicago.	Joliet.
Little, Roger F.	Wilson, Alexander
Champaign.	Cairo.
McCarthy, Frank A.	Wilson, Elmer C.
Elgin.	Kankakee.
McCaskrin, Harry M.	Woodward, Robert M.
Rock Island.	61 E. Goethe St., Chicago.
McSweeney, John R.	Worth, Evan
3953 Jackson Blvd., Chicago.	Lincoln.

A. C. Ivy, M. D., Secretary,
Illinois Society for the Protection of
Medical Research.

TRAIN SCHEDULE TO EAST ST. LOUIS

C. & E. I.—Dearborn Station, Chicago.

Central Standard Time

Leave Chicago	Arrive Washington Avenue, St. Louis
11:40 A. M.	5:59 P. M.
3:30 P. M.	9:49 P. M.
11:55 P. M.	7:10 A. M.

Wabash R. R.—Dearborn Station, Chicago.

Leave Chicago	Arrive St. Louis
11:30 A. M.	6:00 P. M.
3:15 P. M.	9:55 P. M.
12:05 A. M.	7:41 A. M.

Chicago & Alton R. R.—Union Station, Chicago.

Leave Chicago	Arrive St. Louis
11:30 A. M.	6:00 P. M.
3:00 P. M.	9:30 P. M.
6:50 P. M.	1:20 A. M.
11:30 P. M.	6:55 A. M.
11:59 P. M.	7:43 A. M.

Illinois Central R. R.—Central Station, 135 E. 11th Pl.

Leave Chicago	Arrive St. Louis
11:45 A. M.	6:15 P. M.
4:00 P. M.	10:30 P. M.
11:55 P. M.	7:28 A. M.

Original Articles

UNDULANT FEVER*

LLOYD ARNOLD, M. D.

Department of Bacteriology and Preventive Medicine, University of Illinois College of Medicine, and Illinois State Department of Public Health

CHICAGO

Undulant fever in man is caused by bacterium producing infectious abortion in goats, cows and pigs. Infectious abortion in these domestic animals is a disease of the fetus. The developing fetus becomes infected with the bacillus abortus. The death of the fetus and the evacuation of the uterus follows. The female is the carrier of the bacillus abortus, she does not seem to be damaged as a result of this chronic carrier state. The bacteria are present, at least at times, in the milk of such animals. The disease is one of the fetal stage of the unborn animal.

Man can become infected with the bacillus causing infectious abortion in our domestic animals. The goat strains have been long known to cause a characteristic chronic undulated fever, known best as Malta fever. It is now known that cow and pig strains of the infectious abortion bacillus can cause undulant fever in man.

Undulant fever outside of the Mediterranean basin in south Europe is assumed to be due to the cow strain of the bacillus of infectious abortion. The swine or pig strain has been implicated in some of the human cases in this country. Thompson¹ Harrison and Wilson² Manson-Bohr³ can be consulted as to the distribution of this disease in the British Isles. Cesari⁴ and Ledoux, et al.,⁵ give the distribution in France. Kristensen⁶, Madsen⁷ and Sjoerolev⁸ in Denmark. Kling⁹ reviews the situation in Sweden. Gabli¹⁰ has 30 pages of references covering undulant fever in Italy. Van der Hoeden¹¹ has reviewed the human undulant fever occurring in Holland. It can be seen from these references that undulant fever is spread over a wide geographical area.

Port of Entry of Causative Agent. In the state of our knowledge at the present time, we can consider two ports of entry of the bacillus abortus into man: namely the alimentary tract

and the skin. The *B. abortus* is eliminated from the infected cow in the milk. The drinking of raw and unpasteurized milk containing this microorganism has been responsible for many cases of undulant fever. Children drink more milk than the adult age groups of our population, but the incidence of undulant fever among children is less than any other age group. Graph 1 shows the relative distribution by age groups of 704 recorded cases of undulant fever in the United States. It is apparent from this graph that the highest incidence of the disease is between 20th and 50 years of life. Graph 2 shows the distribution of these 704 cases by sex. Practically three males are infected to one female. These figures would not support a milk-borne origin of the causative agent of undulant fever. This would not exclude milk as a possible vehicle, but in the absence of other evidence, it would be extremely unlikely to be a milk borne infection. Hardy¹² has analyzed 222 cases of undulant fever in Iowa and has again called our attention to what most of us have observed, namely, that undulant fever in this country is a rural disease. Hardy has shown that the case rate per 100,000 population in urban (Iowa) was 4; in towns less than 5,000 population 8.3 cases; in rural communities 11.4 cases per 100,000 population. There were in his series three times as many cases per unit population in the country as compared to the cities, the small towns ranging between the two. Hardy, Hudson and Jordan¹³ have shown that the skin of guinea pigs is a better port of entry for pig and cow strains of *B. abortus* than the alimentary tract. There was no local inflammatory reaction at the point of entry of these bacteria in his experiments. Hardy suggests the skin as an important port of entry in animals and states that the ingestion of the *B. abortus* does not satisfactorily explain the epidemiology in domestic animals infected with *B. abortus*. Rimpau and Steinert¹⁴ investigated a limited number of cases, one-half they supposed due to contact, one-fourth due to drinking raw milk, and one-fourth unexplainable either by contact or milk drinking.

The goat strain of the infectious abortion bacillus is not so important to us in the middle western states as the bovine and porcine strains of the animal disease. The various investigators have not fully agreed upon the means of differen-

*Read before the Section on Medicine of the Eightieth Annual Meeting of the Illinois State Medical Society, Joliet, May 21, 1930.

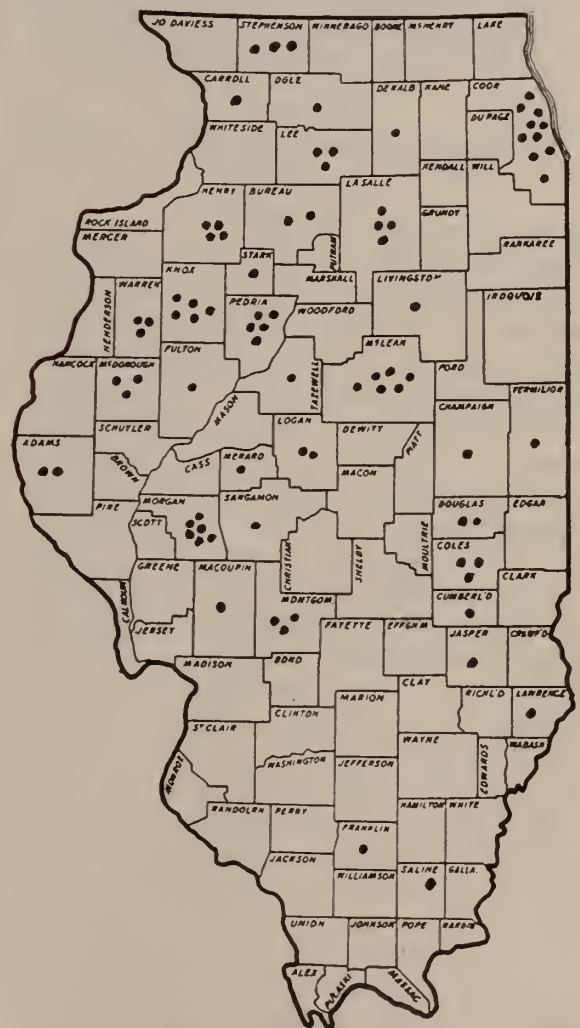
tiating the cow from the swine strain. The use of the guinea pig has been advocated by Theobald Smith, while Alice Evans is satisfied with results obtained by absorption of the agglutinins. Other workers suggest differences in cultural characteristics as ways of differentiating between these two strains. Most of our experimental evidence, as well as human experience, leads us to believe the swine or porcine strains of the infectious abortion bacillus to be more pathogenic than the bovine strains.

Onset. The cases can be roughly divided into groups according to severity of the initial symptoms. A sudden onset characterized by rigors, chills with profuse sweating, muscular and joint pains, loss of weight and a characteristic continued persistent and undulating fever curve. A more gradual and insidious onset is the other type encountered. The patient feels tired during the afternoon, with headache, backache, pains in muscles, joints and extremities; a loss of appetite, digestive distress and usually constipation. Patients feel feverish or hot in afternoon, preceded by sensation of chilliness. The mental state changes to one of extreme irritability, mentally depressed and anxious of a serious impending illness. The profuse and drenching sweating is one of the most outstanding abnormal symptoms.

Undulant fever is confused with typhoid fever, malaria, tuberculosis and influenza, added to these, rheumatic fever and subacute bacterial endocarditis (*streptococcus viridans*).

Diagnosis. The clinical picture is one of septemia and generalized infection. The undulating characteristic fever curve, the rigors, chills and sweating cannot but point toward such a clinical picture. The blood serum should be tested for agglutinins of *B. abortus* origin. This is the same as the Widal test, except the *B. abortus* is used instead of the *B. typhosus* for the test. If the serum is diluted over 1 to 80 with normal salt solution and still agglutinates the *B. abortus* the reaction is considered diagnostic along with the clinical picture of the disease. In dilutions less than 1 to 40, the test is not diagnostic. There are a few cases of undulant fever on record in which the agglutination test was negative. The *B. abortus* can be cultivated from the blood during the acute febrile stages of the disease. The *B. abortus* can be grown from the

urine during acute febrile stages, but the urine does not yield as large a percentage of positive cultures as the blood. Ten c. c. of blood should be drawn under sterile precautions, the same as is done for the Kahn test, and sent to the laboratory with a request for undulant fever diagnosis by the cultural and agglutination reactions. The agglutination reaction usually appears after the third week of the illness. The *B. abortus* may be grown from blood specimen before this time. To these two diagnostic procedures, should be added the skin test. Giordano¹⁵ has found this test of value. Suspensions of *B. abortus* killed by heat were injected intradermally (0.05 to 0.2 c. c.) and in patients with undulant fever there was an area of hyperemia developing in 12 to 48 hours after in-



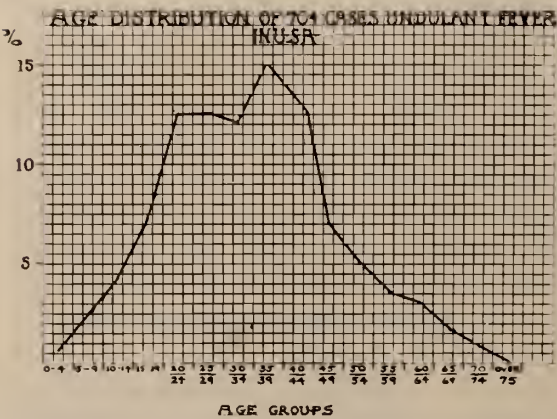
Spot map of State of Illinois showing distribution of undulant fever cases from January, 1926, to May, 1930. Each dot represents a reported case.

jection. This test was negative when performed upon normal subjects.

To recapitulate, one could suggest that typhoid be eliminated by Widal and stool cultures, malaria by microscopic examination of the blood for plasmodia, early tuberculosis by physical and roentgenographic studies, and then the possi-

bacteria would benefit a patient suffering from a septicemia caused by the same living bacteria.

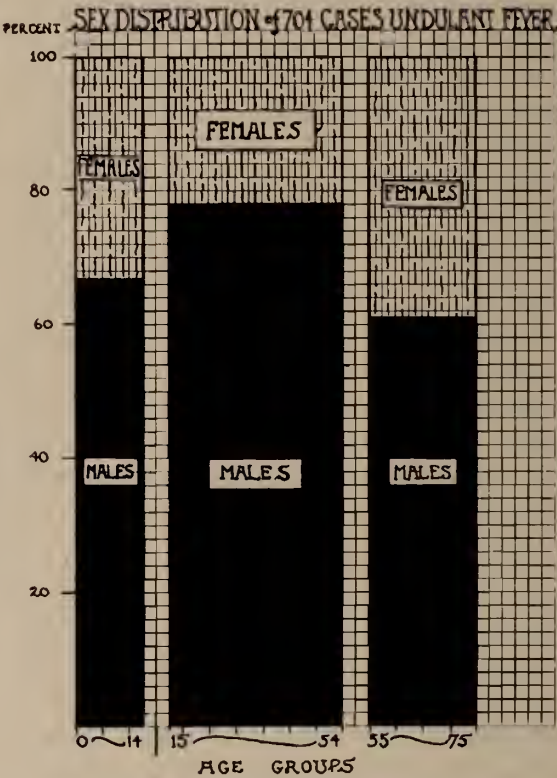
Prevention would be the method of choice. Inasmuch as the *Bacillus abortus* is present in the milk of cows harboring this bacterium, the pasteurization of such milk should be carried out before it is offered for human consumption. The skin may be the port of entry in some cases. Proper precautions in handling aborting animals and the dead fetus and other discharges should be carried out by people in contact with such material. It is possible that certain states or even small localities may have particular problems in transmission peculiar to that environment. Illinois may have a different undulant fever question in so far as the epidemiology of



Graph I. Graph showing in percent the distribution of undulant fever in the United States by ages.

bility of undulant fever should be considered. Blood should be sent to the laboratory for culture and agglutination. As in any other agglutination test, one specimen if negative is not of great value. It is best to submit at least three blood specimens if in doubt as to the diagnosis.

Treatment. The treatment is purely symptomatic. No specific method of treatment is known as present. Keep patient in bed during the febrile stage of the disease. Sedatives should be given for insomnia, headaches and other distressing symptoms. Convalescence is often long and tedious. Abundant nourishing diet is the most important part of the treatment. There is a loss of 20 to 40 pounds of weight during the febrile stage. The increased oxydation of the body, accompanying the fever process, with the loss of appetite, leads to a rapid diminution in weight. This should be offset as soon as possible by diet. Psychic encouragement is also important. The mortality rate for undulant fever is low, 2 to 3 cases per hundred have a fatal outcome. Chemotherapy (mercurochrome) has not proved to be effective in the majority of cases. Foreign-protein therapy has been tried, but little improvement has been noted. Specific vaccine therapy has its adherents, but it is difficult to understand how the injection of a heat killed



Graph II. Graph showing distribution of 704 cases of undulant fever by sex in different age groups.

this disease is concerned than Iowa or any other locality here or abroad.

The spot map of the state of Illinois shows the number of cases of undulant fever that have been diagnosed by agglutination tests in the Division of Laboratories of the Illinois State Department of Public Health from January, 1926, up to May, 1930. One question we wish to bring

to your attention is, "Does this represent the distribution of undulant fever in this state?" It will be noted that there is a tendency for several cases to appear in a county that shows the presence of the disease. In other words when a case is once recognized, there is a tendency to find more cases in the same community.

There are probably many more cases of undulant fever in Illinois than have been reported. The disease has the highest incidence in the rural communities. The State Department of Public Health is desirous of offering what aid it can in ascertaining the extent of undulant fever in Illinois. If blood can be sent to the State Department of Public Health for bacteriological and serological examination in cases of continued and undulating fevers of unknown origin, we feel confident that aid will be rendered the physicians in rural communities in arriving at a diagnosis in many of these cases.

DISCUSSION

Dr. T. G. Hull, Chicago: Recently some of my friends have come to me and asked what this "indolent fever" was, anyway. Undulant fever at the present time is going through about the same stage of development that bovine tuberculosis went through twenty-five years ago. There is the question of whether it is infective for man, and to what degree. The problem is important as a study in research because we do not know much about it. Some have asked if there are only thirty or fifty cases in a certain area over a period of years, why worry about it? That is what we are worrying about. We do not know whether we have discovered all the cases, or how they became infected. Probably unless we do put special emphasis on the subject we will not have any cases reported. They will be called typhoid and tuberculosis instead of undulant fever. Two things have come to my attention concerning the disease. On this map, the cases in Illinois were not in the orchard country, in the south, nor in the dairy section of the north, but in the hog-raising section of the corn belt. Hogs have been the subject of our study because the hog carries an organism which may be communicated to man. How does the contact come? We do not know. Possibly the hog infects the cow and thus this organism is transmitted to the milk. Another factor has been brought to our attention recently. Chickens become infected in the ovaries; the eggs may be infected. However, an infected fowl soon ceases to lay eggs. Undulant fever is a rural problem. We have a few cases in the large cities, but they are usually due to sources outside the city. These conditions are true of Chicago, Detroit and New York. In New York they had several cases over a period of years, all of which were imported. One case developed

within the city; the patient was a milk taster in a pasteurizing plant, where he tasted samples of raw milk.

Dr. R. O. Stites, Industry: It seems that undulant fever is common. I might cite three cases in one family. I was called to see a patient, whom I thought had a toxic angina. In a few days her severe symptoms disappeared and I was able to obtain the history, which was that early in July she became fatigued and irritable. She began to notice a fever, consulted a physician and was advised to have her tonsils removed. In August she took a vacation and felt better for a time, but when she came home again the symptoms recurred. She noticed that her afternoon temperature was 101 to 102. She felt fairly well in the morning but by noon was tired out. Her acute symptoms suggested a gall bladder infection with angina manifestation; a blood examination showed agglutination in 1 to 400. She had sweats and a cough and an obstinate constipation. The six-year-old son had a cough and high fever. Another son was brought into the office with abdominal pain of such a severe nature as to require morphine. Careful watching ruled out appendicitis, kidney infections, etc. In the course of a few days the pain subsided but a cough developed. None of these cases had enlarged spleen. All had cough, constipation, nervousness, fever and loss of weight. All showed agglutination in 1-400. A cow which was apparently healthy was the source.

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1817 West Polk Street.

SPLINTING THE LUNG*

*HERMAN L. HORWITZ, B. S., M. D.,
Formerly Assistant Head Physician

*OTTO C. SCHLACK, M. D.,

Medical Director, Cook County Tuberculosis Hospital, Chicago

CHICAGO

Constitutional and local rest in any disease process may and should rightfully be considered as a panacea. Who, for example, would treat a decompensating heart without putting the patient to bed? Who would allow a patient with pneumonia to be walking the streets? What surgeon would fail to apply a splint or a cast to a fracture? Yet, there are tuberculous individuals walking the streets not, we hope, because of ill advice; but because of the common insidious course of this disease. The treatment of pulmonary tuberculosis is constitutional and local rest.

We shall confine ourselves to the discussion of local rest in the various diseases of the lungs particularly that of tuberculous lesions; i. e., spontaneous pneumothorax, pulmonary hemorrhage, pleurisy with effusion; and also that of pulmonary abscess and bronchiectasis.

Local rest is accomplished by various methods; by lying on the diseased side, by various appliances to the chest; artificial pneumothorax, phrenicoexeresis, and by thoracoplasty. Nature too attempts to produce local rest even if it does accomplish it with what appears to us, without judgment, as is true in many cases of spontaneous pneumothorax. The heart is often pulled over to the most diseased side; the spinal column assumes scoliotic curvatures thus splinting the lung from within and from without respectively. Pleurisy with effusion also is nature's method in producing local rest.

Artificial pneumothorax is a simple procedure; however, not without danger. This method of treatment in patients with unilateral involvement is the choice; because of its simplicity and because it can be discontinued with impunity and the collapsed lung allowed to expand. The immediate danger associated with this operation is air embolism which produces at first symptoms of vertigo, spots before the eyes, convulsive movements, loss of consciousness and

sometimes death. In order to prevent such accidents the patient is placed in the Trendelenburg's position and a free oscillation of the manometric fluid obtained before insufflation of air is started. It is also wise to remember that the patient is the vital manometer. Insufflations should be discontinued at once when the patient complains of tightness or pain in the chest regardless of the manometric reading. Active treatment of air embolism, as we have employed it, is a hypodermic of morphine sulphate gr. $\frac{1}{4}$; atropine sulphate gr. $\frac{1}{150}$; and 15 minims of



Plate 1a. Pathology of left upper lobe with no apparent pathology of the right lung.

1:1000 solution of adrenaline. The proper management of successful cases of artificial pneumothorax consists in frequent insufflations with repeated observation under the fluoroscope for possible marked mediastinal and diaphragmatic displacement in which experience teaches us that most often we find negative manometric readings regardless of the amount of air injected. Air should be insufflated often, at first ending always with a slightly positive pressure, unless the patient complains of marked discomfort (Plate No. 1). When there is a displacement of the mediastinum and the diaphragm, the interval of insufflations should be temporarily discontinued (Plate No. 2).

*Cook County Institutions—Tuberculosis Division, Oak Forest, Illinois.

Notwithstanding the fairly large number of gratifying improvements attributed to artificial pneumothorax, certain complications such as sero and pyo-pneumothorax follow (Plate No. 3). Slight pre-existing involvement of the contralateral lung becomes at times aggravated; and sometimes as we have observed in one patient a miliary tuberculosis complicated the contralat-

and is done under local anesthesia paralyzes the diaphragm with a consequent ascension into the thoracic cage. Phrenicoexeresis is particularly indicated in basilar pathology and is usually resorted to as a preliminary procedure to an extrapleural thoracoplasty.

Thoracoplasty, like phrenicoexeresis, should be undertaken only after a careful study of the general condition of the patient, the temperature, pulse, and the condition of the contralateral lung. The intangible factor of resistance of the patient should be passed on by an experienced internist. We should like to say right here that it is upon sound judgment on the part of the internist and the surgeon that success of thoracoplasty lies; and the prudent selection of patients for such operation constitutes the real difficulty of extrapleural thoracoplasty. This form of pulmonary compression, which consists of removing portions of the first to the eleventh ribs of varying length beginning as close to the spinous



Plate 1b. Complete collapse of the entire left lung with complete abatement of symptoms. The patient is working every day.

eral lung which at previous times was free from involvement as found by repeated physical examinations and roentgenogram studies (Plate No. 4). Lung compression should at once be discontinued when the contralateral lung becomes retrogressive and the policy of "watchful waiting" instituted. Unfortunately, some patients with unilateral involvement have no free pleural space and consequently must have the diseased lung compressed by other methods.

This introduces the discussion of other surgical procedures of splinting the lung, which through the work of Dr. Jerome Head was made possible at our Institution.

Phrenicoexeresis as the name indicates is the evulsion of one or the other phrenic nerves which are the principle motor nerves to the diaphragm. This operation which is comparatively simple



Plate 2. Marked displacement of the mediastinum and diaphragm. Activity is present in the left lung.

processes as is possible, is permanent and cannot be undone as in artificial pneumothorax.

Spontaneous pneumothorax,¹ a common complication in tuberculosis, is of interest because of

1. Gray, Ethan A.: Spontaneous Pneumothorax. J. A. M. A., April 23, 1921. Vol. 76, pp. 1147-1150.

its resemblance to artificial pneumothorax in splinting the lung; yet, to its vast difference in the ultimate prognosis. In order to understand this difference it would be well to call attention to the fact that the collapse of the lung in spontaneous pneumothorax unlike that of artificial pneumothorax occurs as a result of rupture of the lung and thus the air inspired into the lung enters into the pleural space. The act of inspiration being active and the act of expiration being

tom of the flask from which the water is allowed to run. As the water leaves the bottle, a vacuum is produced above the level of the water which in turn is filled with air sucked in from the pleural

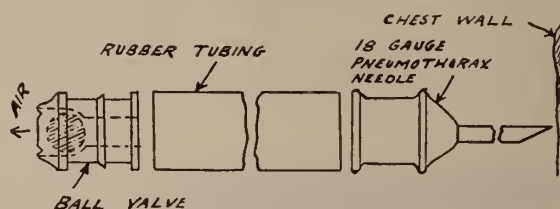


Figure 1.

space. Another method is the continuous method of aspiration which is accomplished by inserting a needle into the pleural space, like in the above procedure, and attaching a rubber tube to the needle and immersing the other end of the tube in a pan of water. Still another method of continuously aspirating air is one which the authors devised (Fig. 1). During inspiration the valve closes not allowing air to be sucked in through



Plate 3. Shows a case of sero-pneumothorax as indicated by fluid level. Adhesions are present at apex.

passive makes the flow of air into the pleuritic space one way and continuous with every inspiration and thus the lung collapses rapidly much unlike that of the artificial method of compression. Spontaneous pneumothorax may, but rarely does, occur in patients with strictly unilateral involvement; and consequently, with the rapid collapse as takes place, the pathology in the opposite lung due to its compensatory effort becomes aggravated and ultimately causes death. Pyo-pneumothorax, a much dreaded complication, results finally, and at a varying interval, a pyo-pneumothorax vomica or necessitatis develops.

The treatment of spontaneous pneumothorax consists in repeatedly aspirating the air by means of a water filled bottle with a nozzle at the bot-



Plate 4a. Before artificial pneumothorax, showing pathology in left apex.

tom of the flask from which the water is allowed to run. As the water leaves the bottle, a vacuum is produced above the level of the water which in turn is filled with air sucked in from the pleural

the lumen of the needle, and when the patient expires the ball valve opens allowing the air to leave the chest cavity. Air is to be aspirated by any one of the methods mentioned until the patient accustoms himself to the collapse produced; and then if the contralateral lung per-

mits, maintain the collapse by artificial means. In the event that a pyo-pneumothorax follows, hychlorite irrigations should be instituted and be repeated at two hour intervals through the day. These irrigations must be done with the closed method, i. e., not allowing air to enter the pleuritic cavity. This should be continued until the patient becomes temperature free or nearly so and the general condition improved. In cases of recent standing, it is possible to obliterate the space by allowing the lung to expand. In cases of long standing, it is necessary finally to obliterate the space by a thoracoplasty. Some patients, strange to say, do apparently well without surgical intervention and remain afebrile for a period of years with a chest full of pus which may be accounted for to the thickened pleura so often present; and thus, slight if any, absorption occurs into the general system. These patients, nevertheless, finally develop a bronchial fistula and succumb.

the bleeding lung and the condition of the non-bleeding lung before collapse is attempted. Insufflations may be continued if the opposite lung permits. If a free pleural space is not to be found, phrenicocoxeresis may be tried.

Pleurisy with effusion, a common condition encountered in the tuberculous, is nature's method of splinting the lung. The treatment of this condition is one of "watchful waiting." Aspi-



Plate 4c. Miliary tuberculosis of the contralateral lung. Marked dyspnea, fever and loss of weight. Hospitalized again.



Plate 4b. After artificial pneumothorax, with marked improvement. Ambulatory and working.

Pulmonary hemorrhage is controlled in a large percentage of individuals in whom a good compression is obtained by air. The air in the pleural space which should be given in comparative large amounts is the tourniquet, so to speak, of the bleeding vessels of the lung. It is essential, however, to determine unquestionably which is

ration may be resorted to in the event that the patient is dyspneic. Under no circumstances should a rib resection be done. If the contralateral lung permits, fluid may be aspirated and be replaced by air thus converting the condition to a sero-pneumothorax and subsequently be treated with air insufflations.

Pulmonary abscess usually affecting the lower lobes of the lungs particularly the right would theoretically yield to phrenicotomy; but unfortunately we have not any experience with this method. A lung abscess that has no exit to a bronchus or is multilocular and only partially drains into a bronchus should not be subjected to a pneumothorax, phrenicotomy, or thoracoplasty; but should be treated more conservatively by postural drainage and if the sputum reveals

many fusiform and spirilla organisms, a course of neosalvarsan should be given as an adjunctive treatment. In cases where the pulmonary abscess is superficial, and not draining into a bronchus and is walled off by pleuritic adhesions from the pleuritic cavity, surgical drainage by means of an open operation and rubber tube is



Plate 5a. Shows a pulmonary abscess of right base before artificial pneumothorax was instituted. 1,000 c.c. of three layered fetid sputum in 24 hours.

indicated. In our experience with artificial pneumothorax in pulmonary abscess (Plate No. 5), we have learned that patients with emphysematous chests, and those with bronchial asthma do not do well. Cases in which an incomplete collapse can only be obtained, likewise do not do well.

Bronchiectasis, a malady characterized clinically by a chronic paroxysmal morning cough and expectoration, and pathologically by an abnormal dilatation of the bronchi and bronchioles, usually affects the bases of both lungs and at times the upper lobes. Bronchiectasis of the upper lobe requires no treatment because drainage is constant and accomplished by gravitation; however, bronchiectasis of the lower lobes should be treated by postural drainage. If one or the other side shows greater involvement, artificial pneumothorax or phrenicotomy may be tried.

SUMMARY

1. Artificial pneumothorax should be first attempted before any other surgical method of collapse is resorted to.

2. Frequent fluoroscopic examinations are essential in all patients receiving air insufflations.

3. Particular and repeated vigilance should be given to the contralateral lung in all methods employed in splinting the diseased lung.

4. In our series of 106 patients in whom artificial pneumothorax was attempted 4 or 3.77% of the patients developed symptoms of air embolism. All of these patients had no satisfactory free pleural space.

5. Artificial pneumothorax should be continued at least from two years to five years unless intervening complications should contra-indicate further insufflations.

6. In a series of 78 lung compressions for pulmonary tuberculosis, 54 were classed as good



Plate 5b. Pulmonary abscess compressed by means of artificial pneumothorax. Complete collapse present. Compression was continued for 4 months. (Posterior view.)

and 24 as poor. Of the 54 good collapses 34 patients or 62.9% were classed as clinically well; 10 patients or 18.5% classed as bilateral progressive or unimproved; and 10 patients or 18.5% dead. Of the 24 patients with poor or

incomplete compressions 8 patients or 33.25% were clinically well; 6 patients or 25% bilateral progressive or unimproved; and 10 patients or 41.6% dead.

7. Of the 78 cases of artificial pneumothorax 53 or 68% developed a seropneumothorax, and 16 or 20.5% developed a pyo-pneumothorax.

8. Phrenicoexeresis is an operation resorted to as a rule in patients in whom air compression is not possible. It is also used as a preparatory procedure to a thoracoplasty. Of the 18 patients in whom no pleural space was found 2 patients were subjected to a phrenicoexeresis; one improved and the other became progressively worse; 8 patients were subjected to both phrenicoexeresis and thoracoplasty, and 7 of those patients improved and became clinically well and one was unimproved.

9. Of the 21 cases with spontaneous pneumothorax only one patient or 4.54% became clinically well; 6 patients or 27.27% were classed as bilateral progressive or unimproved; and 14 patients or 68.18% dead. Of these 21 patients with spontaneous pneumothorax 4 or 19% developed a sero-pneumothorax and 9 or 42.9% developed a pyo-pneumothorax.

10. Of the total of 22 cases of pyo-pneumothorax studied, 10 patients or 45.4% died; 4 patients or 18.1% were unimproved; and 3 patients or 13.6% were improved up to the time of writing this paper. Of the remaining 5 patients or 22.7% in whom hychloride irrigations was instituted and later subjected to thoracoplasties all were improved.

11. Of the 10 patients with pulmonary hemorrhage in whom artificial compression was started as the treatment, we were successful in controlling the bleeding in all.

12. A rib resection is absolutely contraindicated in pleurisy with effusion.

13. In a series of 7 patients with pulmonary abscess subjected to air compression, 3 patients were classed as good and 4 patients as poor. Of the 3 good collapses 2 or 66.6% became clinically well while 1 or 33.3% died. Of the 4 patients with poor or incomplete collapses 1 patient or 25% became improved; while 3 or 75% died.

14. Pulmonary abscess should not be treated by methods of lung compression in patients who have an emphysematous chest or who have a bronchial asthma. Neither should an abscess be

compressed when it has no or only partial drainage into a bronchus. Postural drainage should be resorted to and neo-salvarsan used as an adjunctive treatment.

15. Bronchiectasis of the upper lobes requires no treatment; however, bronchiectasis of the lower lobes should be treated first by postural



Plate 3c. The lung as it appeared after artificial pneumothorax was discontinued. Patient had practically no sputum and was clinically well and discharged from hospital.

drainage or by artificial pneumothorax or phrenicotomy, depending upon whether the disease is characteristically unilateral.

THE JOB OF EDITING A MEDICAL JOURNAL

A FEW SIDELIGHTS ON THE PROBLEMS, RESPONSIBILITIES, PERPLEXITIES AND POSSIBILITIES OF SUCH A TASK*

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Ever since Poor Richard started his almanac in the quiet Quaker purlieus of the domain of William Penn—even in fact ever since the first word of hand supplanted the word of mouth of the co-

*Address before Secretaries' Conference, Illinois State Medical Society, May, 1930.

lonial town crier—the free press and the free schools of the United States have been potent factors in the building of the strongest democracy in the history of civilization.

Edmund Burke's famous tribute to the world of journalism—that there are three estates in parliament, the king, the house of lords and the house of commons, but that in the reporter's or press gallery there sits a fourth estate far more important than all—is nowhere more applicable than in the case of scientific journals. This famous "Fourth Estate of the Realm" is the one forum, the one unprejudiced mouthpiece that any trade or profession may have. The lay press, kindly though it may be towards medicine or any other trade or profession, must be influenced necessarily though perhaps unconsciously by its individual ideas as to what is best for public policy or for its own issues. Naturally, then, a medical journal must appear as the mouthpiece, the printed delegate, the unsubsidized representative of that delicate and iron-clad profession—the science and practice of medicine.

In a way a medical journal is really the medical profession on parade. It must have the respect of the public, both lay and professional, by being firmly ensconced on its own feet. This means that it must be edited and published at a minimum of expense. Such a condition calls for paring to the bone every item of outgo and of garnering to the fullest the harvest of profit.

Right here is where at the outset the editor of a medical journal, who in reality must act also as publisher, runs up against one of the first and worst snags—that of selection and discrimination. Such a situation calls for a direct and immediate application of the principles of elimination. In regard to the advertising columns of the medical journal, an editor is confronted constantly with the necessity of thorough purging.

After the columns have been purged and the advertising selected and published comes the still further task of keeping the advertiser in. Unless advertising "pulls," the advertiser discontinues. This means that unless physicians patronize the firms that advertise in the medical journal these firms will soon be non-advertisers.

In order to have readers and circulation, the editor of a medical journal must set forth a palatable and appetizing magazine. Fresh, crisp,

interesting, educative articles must appear. Scientific educative information based on research or experience must first of all be exact and veracious; must be presented simply; have some reason for presentation; possess ample and accurate bibliography; be illustrated with sketches or photographs, if possible; set down in as few words as is compatible with intelligent comprehension, and, above all, in legible form for sending to the printer. Not only is this a requisite from a point of exactness but also of expense. Printers' wages are more than ample. Horace Greeley's notoriously bad handwriting is no longer considered a sign of genius. According to union requisites manuscript for publication should be typewritten, triple spaced and done on only one side of the paper. Further, the paper should be of good weight and in the upper left-hand corner should appear plainly name, address and phone number of the sender. All contributors should keep for their own files carbon copies of all manuscripts sent out. Loss or damage is sometimes unavoidable, even with the best of care and utmost precaution. Because many contributors do not follow these rules, there ensues much trouble for the editor. What applies to the advertising columns applies equally to the reading space. What is printed there must "pull" readers. And to achieve this "pull" an article must be sound, educative, timely, pungent and, above all, brief. The bulk content of the magazine must be varied, even in such a personal magazine as is the ILLINOIS MEDICAL JOURNAL.

From being the soul of wit in these busy times, brevity has become almost the sine qua non for an audience. There is far too much to do and far too little time in which to do it. Nobody, least of all a doctor, has the time to wade through interterminal bogs on his way to get a fact, a method or a point. A limit of 2,000 words is considered advisable. A short article will be perused when a long one will be passed by.

Even in the field of economics—and economics and legislation have intruded themselves to an unprecedented extent upon the attention of the physician—there must be brevity, compactness and accuracy as well as that of immediacy. These are great times we live in and their speed is even greater.

Here is still another tangent to be considered in the contents of a medical journal. This is the human element. Chronicling of vital sta-

tistics in the profession, the marriages, births, deaths, or departures for other fields of physicians, and of changes in their affiliations, as well as of developments of various medical environments and of work in county and sectional societies must all be included in the perfect medical journal. Medical journals, like all other periodicals, are considered by their public in the light of a general utility. Everybody owns a newspaper and its editor, too, in the subconscious mind of the public. It is to the newspaper or magazine that the citizenry looks for a champion to right its wrongs. What is true of the lay press is true of the trade press. Unfortunately, the strength and competency of a periodical's scope often fails to rise to meet these demands from sheer physical limitation.

The editor of a medical journal, no matter how powerful he may be, can not put chiropractors nor any other charlatans out of business, nor off the air, nor do away with them in any matter whatsoever. The editors of medical journals do not control arbitrarily either the radio systems of the United States or practitioners of medicine. Some deeds have to be left for the state's attorneys. It is from the state's attorney that prosecution emanates against "irregulars" practicing without a license.

In addition to demands that would extend the job of an editor into the realm of a court and of a punitive bureau, the editor's mail is ever glutted with requests that would extend this jurisdiction into that of a research and information bureau.

There is no editor in the world, who is worthy of the name, who is not eager, willing and ready to give the most and the best service to everyone and anyone. It is nice to be able to locate the missing, and nicer yet to find men who have been re-located perhaps a dozen times, and a cause for grief when a patient has to be informed that inquiry shows that his beloved former physician is dead. To be beset by trivial requests that would require hours and even days of tiresome investigation is annoying to any editor. To a degree this is true of the continuous letters asking for the why, when and where of papers read or published on varied topics. Yet editors try their best to cover this service, too.

It does seem a bit thick, though, to any man to receive requests to prepare, and that gratui-

tously, papers for other men to read or articles for them to print, or asking for the purchase and supply of a complete bibliography. Nor do pleas for recommendation of certain types of beauty specialists, cosmetic surgeons or endocrine specialists set any better on the ethical editorial stomach.

I have purposely left until this point one matter that is a sore spot in editorial offices all over the world and one of the most essential items in any copy. That is promptness. Punctuality of copy is as necessary as is plain and legible copy, and copy for the publication of which there exists a vital reason.

A magazine has to be planned out from one to three months in advance. Getting out a magazine is a matter of mathematics as well as of literature. So much space for ads, so much space for this and so much space for that. Often a paper arranged for one issue must be held over until the next because of a shift in authors' quantity that would disturb the scheduled size of the magazine. Frequently when the magazine has been half printed, in comes some dilatory contributor with material the editor's heart is simply aching to print but that has been received far too late to be included in that issue, and by the time the next issue is out this material has become stale or of no interest. Yet, let me repeat, this member's contributory column is one of the most desirable features of the ILLINOIS MEDICAL JOURNAL. Among other qualities it possesses is the revelation of the reaction the JOURNAL has upon its readers.

Dear to the heart of any editor are the comments on what has been the feeling of his readers as to what his magazine has published. For a medical journal the more the difference of opinion, the better the result of a good stiff argument. No letter received at the office of the ILLINOIS MEDICAL JOURNAL is ever either intentionally ignored or unanswered, no matter how seemingly trivial or irrelevant it may be. That obviously no editor can continually agree with all his readers has nothing to do with the case. The free press demands, deserves, desires and gets—free speech.

Personal prejudices and preferences of an editor are eliminated from the policy of a medical journal with the strict impartiality and impersonality as that with which an honest judge passes on the merits or demerits of a case.

When it comes to his work, an editor can have no self. He is merely the switch that flashes bulk opinion on the screen. More than anyone else must the editor have learned the great essential of life—the ability to put ones self in the place of the other fellow. An unequivocal asset for the editor of a medical journal is the skill to place his state or local society on record as to matters of policy in local, state and national questions vitally concerning the medical profession and also the public welfare and national prosperity.

Proceedings of the annual meetings have a right and an honored place in the pages of any medical journal. This is true both from a standpoint of record and of information for those members who may have been unable to have attended the convention. Publication of such annuals however crowds out numerous papers in every volume.

When all ethical questions of selection, discrimination and general content have been cared for there remain still to be reckoned with the inflexible routine of the mechanics of the situation. Not only must routine and schedule be obeyed but allowance must be made for the "tangible pertinacity of intangible things." Time is required for the printing, binding, addressing, mailing and delivery of Journals that make up each issue. Customarily there are unavoidable delays or accidents in many places.

One of the perplexing problems of the editor is the advertising that appears in the Journal each successive issue. Medical advertising is difficult to obtain primarily. It is equally difficult to retain. Frequently prospects are solicited over a period of years and are finally secured only to be lost as advertisers in a few months. The usual complaint for discontinuance is that the advertiser does not receive a single inquiry from the doctors. Many advertisers are very finicky in their attitude and are continuously finding fault and looking to trivial excuses to get out of paying for the monthly bills. They delay in returning proofs for O. K., thus causing the editor much worry as well as necessitating frequent telegrams for hurry-up proof. Such procrastination on their part frequently holds up for one or several days the going to press with the Journal.

Some writers pay little attention to correct

spelling, grammatical construction, properly organized composition, so the editor is compelled practically to rewrite the article to make it readable. Here is another imposition on time and ability.

Many articles submitted to the editor are far too long. The secret of getting over a message to the public is in short articles. The Soviet leader, Lenine, said, "Lord deliver us from the short article."

There is never any rest for the editorial eye. For the editor must reproduce from time to time important passing events, discoveries, etc., as these appear in other medical journals. To keep his journal alive he must comment editorially on current events. All this encroaches upon his time to an unbelievable extent. He must read, research and ever be on the alert.

In order to have an up-to-date medical journal the editor must have breadth and depth of vision, must be a wide reader, must be well posted and able to select, to write, to review, to abstract and to direct, and most of all possess a gift of prophesy.

A medical journal should own definite or fixed policies to guide the editor. The economic side of medical practice must by no means be neglected by the medical journal. The trend of the times must be approximated.

A medical journal should be a clearing house for practical information of a professional sort and a point of contact with the larger world of human life and interest; an active leavening and lifting force to make better doctors, better citizens and a potent and living factor in the general and medical educational scheme.

A medical journal must reflect the expressed wishes of the organized profession of the state. On matters about which there is some question of policy the journal must not go far afield. The journal must discuss editorially, the every day problems of the profession from all angles and much stress should be placed on these discussions. Editorial pages illustrating the highest ideals of the profession should so impress the reader as to be accepted as authoritative.

Good editorial work on a state medical monthly journal requires the greater part of the time and energy of several persons. The editor must take pride in his work. The work on a journal of the kind under discussion requires individual

personal attention. It cannot be done by proxy. The better the editor knows the profession as individuals, the better will he get along with his work as editor.

Editorial work should be paid a compensatory sum to get the best results. No physician of average ability can give a large part of his time year after year, for the good of the cause without compensation.

The editor's loyalty to the profession as a unit should be beyond question. He must be a student and march with the progress of medical science. He must be aware of every forward step, investigate every new development, and eliminate from the mass all theoretical vagary and error.

The unknown details for which the editor is not thanked far outnumber those that are known. By far the most of a medical editor's work never positively shows in his journal. The things for which you have most reason to be grateful are precisely those of which you have no conception. In the imagination of some, the medical editor sits in a very comfortable chair with little to do, drawing a fat salary. The truth is that he is poorly paid, and that he slaves day and night with little or no time for recreation in order that his journal may appear in a most presentable form. He has to steal time from his practice and his personal affairs to do his work.

A general policy of fraternity and warm fellowship among editors is highly desirable. We admire journals that are fearless and individualistic, free in spirit, fighting out a battle of their own for scientific progress and helping to maintain the integrity of the medical profession.

A firm and well coordinated editorial policy is an immense advantage to any periodical. To a medical journal it is indispensable. No one is required to subscribe to this policy as a condition of membership in any essential or desirable organization.

No man today, if he does anything else, can even glance over the type of the literature which appears in his own language to say nothing of that emanating from foreign countries. His medical journal should be to him a sorting station of the medical progress of the world, giving him at frequent intervals, abstracts or synopsis of the most significant articles which have recently appeared in all civilization.

Another of the problems confronting the editor that is particularly annoying and time consuming is the verifying of the literature that some authors of original articles quote. All sorts of sins and even crimes are committed in this respect. An editor dare not accept anything on faith but must verify every single bibliographic reference. To misspell the name of an author is an unpardonable crime. To state name of journal, date, volume, or page incorrectly constitutes not only scientific negligence but a serious discourtesy to the reader. The up-to-date journal guards this objectionable feature religiously.

It is the duty of the editor to protect his contributors against unguarded expression that might be open to serious misconstruction; to obviate any such happening requires careful scrutiny.

The work of an editor is not only absorbing but it may become burdensome. Certainly it claims individual attention and devotion. For the many difficulties and frequent disappointments that fall to the lot of every medical editor there is the compensation of the knowledge of work done as well as possible.

But it must not be thought from all of this that the life of an editor is one entirely of contention. Some of the most delightful experiences of professional life come through the medium of editorial service. While there must inevitably drift to the editor's desk some letters of a critical character, by far the greater number bring a different message—a message of commendation and encouragement. There develops between the editor and his army of readers a very intimate bond of fellowship. No day is ever so dark and discouraging that it is not brightened by kindly messages from appreciative readers, and even from contributors themselves. If the splendid men who write these letters could only know how much heart they put in an editor they would write even more frequently than they do. It is, after all, the reaction of the reader that brings to an editor his real reward. If the reader fails to express himself the editor never knows what that reaction is. There is no question but that the best work the editor does comes from the stimulus given by appreciative readers and when a man in the generosity of his heart writes an encouraging

letter to an editor he never realizes what a far-reaching effect it has.

This brings up another question that is frequently discussed. There is a rather widespread impression that doctors are not readers of their periodical literature. My somewhat extended experience as an editor convinces me that their habit of reading trade journals is underestimated. If the average practitioner could see the mass of correspondence that comes to an editor's desk in the course of a day, week, month or year he would be forced to conclude that medical periodical literature is read extensively. Men cannot write letters about articles they never read. So the case seems clear that they must read a great deal.

Naturally every writer is so impressed with the importance of what he has written that it is always a delicate matter to approach him with a request for curtailment of any kind. He honestly believes that he has told his story acceptably and in the fewest possible words consistent with clearness. For some outsider even to hint that the child of his brain is out of proportion is almost equal to intimating that his natural child is in some way deformed. However diplomatic an editor may be there is always sure to be some hurt connected with such a procedure. The wonder is that essayists are as reasonable as they are. Some of them are really helpful in the situation, though I cannot remember a single instance where an essayist has asked for his manuscript to be returned for the purpose of condensing it. If writers agree to a condensation they usually want the editor to revise the paper. I recall many instances where contributors wrote appreciative letters accepting the situation, and saying that they had no time to devote to condensing the paper and wished the editor would perform the task. This was done to the extent of reducing the manuscript from twenty-five to fifty per cent. and cutting out one-half of the illustrations, much to the acknowledged improvement of the articles. This was an easy way out of the dilemma even though the time expended by the editor might have contributed a few more hours or days recreation or to other less arduous duties.

There seems to be developing a much better understanding between contributors and editors than formerly existed. This is due to increas-

ing consideration on the part of both. Editors are more and more inclined to recognize the point of view of contributors, and the latter are in turn becoming more charitable towards editors. All that is necessary for a perfect understanding is that each shall endeavor to see the other side of the question.

The details of getting out the journal every month are more numerous and trying than can be imagined by anyone who has not followed this work from beginning to end. With it all there is much of absorbing interest every day. There is assuredly a real inspiration in contact with members of the profession in all sections of the country and also in foreign lands. Without this there would be little to relieve the tedium of a service which is more exacting than any other connected with professional life.

I cannot close without a word of appreciation to the state officers and the members of the council, and to the county secretaries who are here assembled, for their uniform kindness and cooperation in the past, and without also expressing the hope that their interest in the Journal may continue to increase, and that the editor and staff may be given the benefit of many valuable suggestions for improvement in the future. It is only by the active interest of all of our members that our official publication may be brought to its fullest fruition as the mouthpiece of organized medicine in this country.

I recently heard of an incident in which a physician had written what was, in his opinion, a very splendid scientific paper, and sent it to the editor of a certain journal. The editor sent it back with a letter saying that while it contained some very excellent material, it was much too long, much too involved, and would not be read in its present form, and asked the writer to cut it down. He received in answer an insulting letter to the effect that the writer knew what he wanted to say and how to say it. Of course, he did not get very far with that. The editor told him, however, that he was going to take the liberty of having the paper revised and would then submit it to him. He turned it over to a manuscript editor who reduced it by about half and it was then returned to the physician without any comment or any marks of identification. A telegram came back saying that this was the best paper on the subject the gentleman had ever

read, adding, "You can throw mine in the waste basket." It was his own paper, properly edited, with some of his idiosyncrasies eliminated. The paper was published in its revised form and created a good deal of favorable comment.

25 East Washington St.

DISCUSSION

Dr. Olin West, Chicago: The trials and tribulations of an editor, or any officer of any medical society, are great, as you all know.

HEALTH APPRAISAL OR PERIODIC EXAMINATION OF APPARENTLY HEALTHY PERSONS*

JOHN M. DODSON, M. D.
CHICAGO

The topic assigned to me for this program is "Health Appraisals." The medical activity which is so designated has been variously spoken of as a "Health Inventory," "A Health Survey," "A Periodic Estimate of the Physical Condition" and in other similar terms. None of these expressions are ideal, nor is the phrase "Periodic Examinations of Apparently Healthy Persons," which is most commonly used, entirely free from objection. Inasmuch, however, as this last designation was officially adopted in 1922 by the House of Delegates of the American Medical Association and appears on the blanks which are published by this Association for use in these examinations, it would seem best to prefer it to other terms. It is proposed in this paper to discuss briefly the origin and development of this type of medical service, the actions of the American Medical Association in regard to it, the steps which have been taken to promote its growth in various state and local medical societies, and, as nearly as can be ascertained, its present status in the minds of the members of the medical profession and of the public in the United States.

History. There have doubtless been for many years a few persons in each generation who, while in apparently good health have had themselves examined at intervals by physicians as to their physical condition and their freedom from physical defects or from faulty habits of living. Three-quarters of a century ago my own father, a physician in Wisconsin, was asked by a wise

client to advise him and his family about how to keep in good health, the service to include such physical examination of the members of the family as the doctor thought necessary. An annual fee was paid for this service with the understanding that it was not an advance payment for medical care in times of illness. Attention for actual sickness was to be paid for in addition to the health advice.

The first suggestion in English medical literature that such a health examination is worth while seems to have been made by Dr. Horace Dobell, an English physician about seventy years ago. In 1861 Doctor Dobell wrote:

"I am perfectly convinced from my own observation and experience in practice that patients never think of consulting their doctors until these conditions of impaired general health have advanced far enough to have been developed into some form of disease, and that thousands of people, believing themselves to be in health, are nevertheless undergoing these early, occult and evasive stages of defect in the physical state. I wish then to propose, as the only means by which to reach the evil and obtain the good, that there should be instituted, as a custom, a system of periodical examination to which all persons should submit themselves and to which they should submit their children."

Dr. Dobell describes very clearly what such a health examination should include, but his suggestion fell on barren ground, and it was nearly forty years after the appearance of his article that the next contribution to the subject came from the pen of the late Dr. George M. Gould. This was published in the *Journal A. M. A.*, in July, 1900, and presented essentially all arguments for such health examinations that have appeared in the abundant literature on this subject which has been published in the last thirty years. This article, like that of Dr. Dobell, attracted little attention for some years after its publication, but in 1909 Dr. Burnside Foster of the Provident Life Association proposed to the Association of life insurance presidents that such an examination be made of policyholders at five-year intervals.

Such an examination of employees of the New York City Health Department was instituted as a requirement in 1914 by Dr. Goldwater, then Commissioner of Health. Health examinations (conducted by the Life Extension Institute) at two-year intervals have been offered to the policyholders of the Metropolitan Life Insurance Com-

*Read before Illinois State Medical meeting, Section on Public Health & Hygiene, May 20, 1930.

pany for several years. Other insurance companies have followed suit.

THE AMERICAN MEDICAL ASSOCIATION

The House of Delegates of the American Medical Association took definite action at the annual meeting held at St. Louis in 1922 in the following resolution:

"Whereas, the need and value of periodic medical examinations of persons supposedly in health are increasingly appreciated by the public, it is recommended by the Council on Health and Public Instruction that the House of Delegates authorize the Council to prepare suitable forms for such examinations and to publish them in the Journal A. M. A.; and that the county medical societies be encouraged to make public declaration that their members are prepared and ready to conduct such examinations, it being understood that the indigent only shall be examined free of charge and that all others are expected to pay for such examinations."

A blank form was drafted and a report prepared by a committee of the Council (now Bureau) of Health and Public Instruction, of which committee Dr. Haven Emerson was chairman. This was presented to the House of Delegates at the San Francisco meeting in 1923 and adopted.

An edition of several thousand copies of the blank was printed and placed on sale, as was also an edition of the report of Dr. Emerson's Committee which served for the time being as a brief manual of instructions for the conduct of the health examination.

In the spring of 1924 the secretary of the Bureau of Health and Public Instruction was authorized by the Board of Trustees to appoint a committee to consider such revision of the blank form as seemed to be indicated. This committee of seven physicians, giving careful consideration to the comments and suggestions which had been received, made some changes in the original blank.

At its meeting in Chicago in 1921 the House of Delegates reaffirmed its conviction of the importance of this form of medical service, urged that state and county medical societies give special consideration to this matter and referred to the Board of Trustees the following resolution:

"WHEREAS, The American Medical Association is in sympathy with, and has officially approved, periodic medical examinations of apparently healthy persons; and

"WHEREAS, Physicians generally require more con-

crete formulae and suggestions by which such health examinations can be effectively accomplished; and

"WHEREAS, Such assistance can be best provided by a properly prepared manual compiled from existing experience in this field of medical practice; therefore, be it

"Resolved, That the House of Delegates direct the Board of Trustees to immediately cause such a manual to be published and made available to all physicians."

Pursuant to this action the committee which had revised the blank prepared a Manual of Suggestions for the Conduct of Periodic Examinations of Apparently Healthy Persons which was printed and ready for distribution in the summer of 1925. This Manual included the original report of Dr. Emerson's Committee and in addition a section on the advice to be given to the health client.

At the meeting of the association held in Atlantic City, May 25-29, the following resolution was passed:

"Resolved, That, owing to the nation-wide need and interest in periodic health examinations, this matter be referred to the Executive Secretary of the Bureau (formerly Council) of Health and Public Instruction with power to call a conference at such time and place as seems best to correlate the work already done and devise a nation-wide plan for adoption."

This conference was held at the American Medical Association building in Chicago in November, 1925, in connection with the annual conference of the secretaries of the State Medical Associations.

Sixty-six thousand and four hundred copies of the Manual of Suggestions have been distributed, in large part through the state-wide distribution by state medical societies: 601,000 copies of the blank form have been sold and the demand continues steadily.

In a questionnaire addressed in 1926 to the secretaries of the 2,100 county medical societies constituent to the American Medical Association, the final question read as follows: "Have any steps been taken by your society to promote periodic examinations of apparently healthy persons?" Of the 1,226 replies to this question, 254 were in the affirmative.

Slight amendments to the blank and also to the Manual have been made in subsequent printings by the Bureau of Health and Public Instruction, advised by the special committee previously mentioned. These changes have been very few and only of minor details. Notwithstanding

the printed slip which accompanies each lot of blanks or manuals distributed requesting criticism and suggestions, very few indeed have been received. The text of both blank and manual as well as the size and form of the blank seem to be satisfactory to the many thousands of physicians who have used them. The Massachusetts Medical Society has printed a blank of its own devising and also a handbook. In Connecticut the Department of Health has preferred and used a blank somewhat similar to but smaller than that of the American Medical Association.

In North Carolina the manual was reprinted in the State Medical Journal with the consent of the American Medical Association because funds available in North Carolina could be used for that purpose but not for purchase of the American Medical Association manual.

Development of Interest Among Physicians and Public. The stimulation of interest in this form of medical service has been sought in a variety of ways. County, district and state medical associations have devoted one or more sessions to a discussion of the subject, presented by some physician who was competent to present it and the discussion has often been accompanied by a demonstration of the method of conduct of such an examination.

Demonstrations on Physicians. One of the most effective schemes was that of the Medical Society of the County of Kings in New York. In the earliest days of the movement at a meeting of the society in 1923, after presentation of the matter and a general discussion of its importance, about 100 members offered to submit themselves for a physical survey by fellow members of the society who were especially competent to make it. The findings in these examinations, conducted at the convenience of each examiner and of the one to be examined, were reported to a committee of the society, tabulated and then the summary presented to the society at a later meeting. The number of physical defects found in these supposedly quite healthy men was a revelation that was very effective as a demonstration of the need and possible benefits of such periodic examinations.

This plan of a demonstration has been followed in other communities. The publication of the reports of such examinations in the local press, when properly written up and presented,

is one of the most effective means of arousing an interest on the part of the public.

Very early in this movement steps were taken to organize a society in Illinois for the promotion of an interest in periodic health examinations. At a meeting held at the Sherman House the matter was discussed with considerable interest and steps were taken to perfect such an organization. It seems to have died an early and very complete death.

During the past autumn and winter an extensive campaign was conducted in New York and vicinity by the medical societies of the five boroughs in the New York district, cooperating with the New York City Department of Health, the Tuberculosis Association and other agencies.

In Wisconsin three years ago the district councillors held a special meeting to consider this matter. One councillor in each district was selected who agreed to attend the meetings of any of the county medical societies in his district when a program was arranged to be devoted to this topic, this to be accompanied by demonstrations.

In North Carolina the State Health Officer, the late Dr. Laughinghouse, appointed a physician, especially qualified for such work, to travel about the state for some months, calling on each physician, making a physical examination of the doctor and any members of his family who volunteered for such a survey, and later presenting the subject to the local medical society. This visit was followed, in many cases, by a talk to the public about periodic health examinations and resulted in arousing much interest in the matter on the part of both doctors and laymen.

Response of the Public. A study of this movement during the period since its inauguration by the American Medical Association, in 1923, gives evidence that it is much more difficult to arouse the physicians to the importance of this matter than it is to interest the public. Numerous articles in magazines, newspapers and elsewhere, discussions in lay gatherings and societies of all sorts have brought the lay public in many localities to an appreciation of the great need and value of physical examinations of every human individual at reasonable intervals.

In Dentistry: In the associated field of dentistry it is a well established custom for the dentist to examine every member of the families

whom he serves at intervals of three to six months.

In Pediatrics: Thousands of physicians whose practice is largely among children, especially where they reside in cities of some size, now devote the major part of their time and attention to keeping the babies well by inspecting them, and the care which they are receiving, at monthly intervals, and to instructing the mothers in the matter of their care.

Adults—Life Insurance: More and more the leading insurance companies are finding it profitable to offer to some of their policy holders physical examinations at intervals, perhaps most commonly, of two years. The plan adopted by the John Hancock Mutual Insurance Company, and one or two others, is especially satisfactory. This company notifies each holder of a policy exceeding a stated amount that if he will submit himself for examination by a competent physician and will agree to follow the advice given by the examiner as to the correction of any physical defects found, and to the amendment of any faulty habits of eating, working, etc., the company will pay the fee of the examiner upon receipt of his report that he has carefully examined the policyholder, who has agreed to follow out any instructions given him by the doctor. The examining physician is to be selected by the policyholder (usually his family doctor). He is not required to be an examiner of the insurance company or of any institute or association designated by the insurance company.

In Industrial Plants: The requirement of a physical examination as a condition of first employment, and, with many companies, a re-examination at intervals, is growing very rapidly among industrial organizations. Indeed, it is difficult to understand how any employer of labor on a large scale can afford to risk the employment of men or women without such a guarantee of their fitness for the work they are to undertake. The Workingmen's Compensation Act or the Employees' Liability Act all but compel the employer to adopt such a plan.

Railway Employees: All of the large railway companies now make physical examinations of their employees. The frequency and character of the examinations differ considerably in the several railway companies but the tendency in

the last few years has been distinctly in the direction of more frequent and thorough examinations.

School Children: The rapid growth among educators of interest in the health of school children and all that pertains to it, is one of the most striking phenomena of our time. The custom of having all children examined on their first entrance into school, and at intervals thereafter, is extending very rapidly, the examinations being conducted by the school physician or the family doctor. Failing this, an *inspection* by a school nurse or by a teacher, for the detection of any signs or symptoms which point to any departure from the normal, is being carried out with good results in many places.

Colleges and Universities: Physical examinations of college students who engage in athletics have been made in many schools for some years, but the systematic physical survey of all students with reference to safeguarding and promoting their health is very recent in most schools. The custom, however, is growing rapidly and is giving rise to a new medical specialty . . . the school and college physician . . . to be added to the already too long list of specialist medical groups.

Volunteer Activities: Numerous organizations, such as Y. M. and Y. W. C. A., Boy and Girl Scouts, Campfire Girls, and others similar in character and purpose, have become deeply interested in this matter and are arranging to have their members given the opportunity to safeguard health in this way. Indeed, it is a comparatively easy matter to arouse an eager interest in this movement and to sustain that interest year after year if proper steps are taken.

ARGUMENTS FOR AND AGAINST HEALTH APPRAISALS

It would be profitless at this time to review the arguments for this form of medical activity. Whether we of the medical profession believe that such examinations are worth while or not, it is pretty evident from what has been said that the widespread demand is certain to grow rapidly. Discussion of the *pros* and *cons* is, for us, only of academic interest. The real question is this: "*Shall the medical profession recognize the great and increasing importance of preventive medicine in which the personal health survey is such a fundamental and vital essential?*" Shall

it cooperate wholeheartedly in the promotion of this development, seek to direct it into proper channels, and tender the service of its members in making such examinations in a satisfactory manner at a reasonable price?

Constant complaint comes from laymen that physicians to whom they apply for such examination are apathetic, indifferent, and sometimes, even hostile. They either belittle the need and value of the service or accept a fee for a casual, perfunctory, inadequate and unsatisfactory "once over."

Many of the objections made by physicians have been not to the basic idea but to some of the statements of its overenthusiastic proponents.

Doctor as Health Advisor: First, undue emphasis has been laid on the mere examination for physical defects. Important and numerous as these are, especially in children, the discovery of faults of habit and environment are of great significance in many cases surpassing, in their effect on the health of the client, physical impairment. Perhaps the most far-reaching effect of the health examination program is the reestablishment, on a stronger basis than ever before, of the relation of the family doctor to his clientele. When the custom becomes a general one it will put the doctor in a position to be of the largest possible service as the health advisor of his clients. Of course, he must be paid reasonable and adequate fees for the advice given and it is certain that the vast majority of persons will be perfectly willing to pay such fees.

Lengthening Life: Second, much has been said about the increased longevity which is to result from this periodic check-up on the physical condition. Too much emphasis should not be laid on this possibility. We have as yet little conclusive evidence of the actual extension of the life span which can be expected from this practice. The thought that such examination may add a few weeks or months or even years to the life of an individual who subjects himself to such appraisals makes a strong appeal to many, but after all, this time extension is wholly unpredictable in any particular case and of doubtful advantage. The wise man's real hope is to live out his normal life period in the most complete health, comfort and efficiency possible for him to attain. One of the agents most cer-

tain to promote the attainment of this end is a wise and capable medical advisor.

Elaborately Exhaustive Examinations: A third mistake which is made by many is insistence on an impractical, unnecessarily prolonged and exhaustive examination. What does one mean by "exhaustive examination"? There is almost no limit to the amount of time, the number of tests and therefore the essential cost of the physical exploration which may be made of the human body. Applying all of the refinements of diagnostic procedure known to the clinical or laboratory technician, the pathologist, the roentgenologist, and the numerous and ever-increasing number of specialists one might easily devote a week or more of eight-hour days exclusively to the examination of a single normal individual without exhausting all the possibilities. But to what purpose? Beyond the information gained by a reasonably careful physical examination, as described in the Manual of Suggestion, these ultra-refinements of the several specialists rarely reveal additional facts of importance, excepting where there is obvious reason to suspect some defect indicating reference of the client to a specialist. This attitude of insistence, by many physicians, on a very elaborate examination, if any at all is undertaken, and at a fee which is prohibitive for the vast majority of persons, is incompatible with the development of any widespread adoption of the custom of periodic health examinations.

Examination by a Clinical Group: At many of the health examinations made gratuitously, as a demonstration, at health expositions and the like, the work has been arranged for a group of specialists, oculist, laryngologist, internist, roentgenologist, et al. In private practice a few such groups have been organized to make these examinations. Such a procedure is unnecessary and conveys the erroneous impression that a satisfactory examination can be made only by such a crew of specialists. Ample experience has demonstrated that a good general practitioner with the appliances which he carries in his hand bag can make a reasonably thorough, worth while examination, including the summing up of his findings and the advice given to his client, in from 35 to 45 minutes. In most communities a fair compensation for this service is from \$5.00

to \$10.00. Of course, if in such an examination evidence comes to light of a serious physical defect which needs attention, the person becomes a patient and should be examined more exhaustively as to the defect found.

Preventive vs. Curative Medicine: It is said that the doctor's advice is sought in order to obtain relief from pain or distress, that he is not visited for the purpose of aiding the client to prevent disease. Of course, it has been, is now, and always will be, true that the usual motive which brings a client to the doctor is the desire for cure, but the public is rapidly learning that the physician can be of the greatest service in preventing disease, that expert preventive advice is a good investment, and that the family doctor has a wide field of usefulness as a family and individual health advisor.

The medical profession of the United States, represented in the American Medical Association and its constituent branches stands committed by official action to a program of activity in the field of periodic examinations of the apparently healthy. It can command the hearty, intelligent cooperation of many lay organizations, groups and individuals. One of the most powerful of these organizations is the National Congress of Parents and Teachers through their annual Summer Round-up Campaign of the Pre-school Children. The Congress with a membership at the present time of about one and one-half million in the 20,000 local associations, inaugurated this nationwide movement in 1925. They asked the aid of the medical profession and have sought to conform to the methods of procedure advised by the American Medical Association. In the 1929 campaign more than 50,000 children were examined in the 1,500 local associations reporting. About 110,000 defects were discovered for which the children were referred to their family physicians for correction, or, in the case of children of indigent parents, to an established clinic. Correction of defects by the family physician were reported in over 26,000 cases.

Important as is this campaign for the welfare of the annual crop of pre-school children, it is not being conducted solely for the purpose of detecting and amending their physical defects at that age only. It is recognized by the leaders

of the Congress that it has much larger possibilities.

In the circular sent out this year from the National headquarters to the local associations the opening paragraph reads as follows:

"The Summer Round-up of the Children is a campaign to send to the entering grade of school a class of children 100 per cent. free from remediable physical defects. The ultimate goal is to educate parents to the need for periodic examination of their children by the family physician and dentist in order to insure correction of hampering defects which might not otherwise be discovered." On page 5 of the leaflet is this paragraph headed "An Educational Project:" "Because of the unique and strategic position held by the 20,000 local units of the National Congress, working in and through the schools, action is secured by the people instead of for the people . . . a course which is essential if parents are to be educated to the necessity for periodic examinations from birth onward as the best possible investment in the health and welfare of their children. When parents are so educated they will have their children examined at regular intervals by the family physician and dentist and will be willing to pay adequate fee for such service."

No project has been devised, as far as the writer is aware, which seems more certain than this Summer Round-up Campaign to promote the education of the public as to the importance and value of periodic health examinations at every stage of life.

The medical profession is expected to do its part in meeting the demand for this essential health service. It is inconceivable that any considerable proportion of the members of the American Medical Association can long remain unconvinced of the wisdom of the actions already taken by the Association in regard to this matter or can fail to respond cordially to the call for service in this field.

1360 E. 58th St.

DISCUSSION

Dr. C. U. Collins, Peoria: Dr. Pollard complained a little that he didn't know that he was to be on the program until Friday evening. I have still a greater complaint than that. I didn't know it until ten o'clock this morning. If the secretary notified me, I didn't receive it. It just happened by chance that a doctor associated with me happened to mention to me that he had seen my name in the ILLINOIS MEDICAL JOURNAL program and within two hours I got ready to come and I arrived here.

Dr. Dodson hasn't left much to be said and particularly to this audience. He was correct. I think, in saying that the profession hasn't been sold on this proposition yet. There are quite a number of physicians who

are not taking the interest in it they should and do just what the patients say, that they make light of the idea and say, "You are looking well. What in the world do you want to be examined for?"

One of the greatest surprises I had was about a year ago when a prominent official of the American Medical Association gave an address which I happened to hear, in which he rather deprecated periodic health examinations. As I remember it, the thought was that if a little albumin was found in the urine and the patients told about it, they would worry about it and it would cause them to be miserable when there was no ground for it. It was not a very good argument, but it simply illustrates that when a prominent officer of the American Medical Association talks that way, it isn't to be expected that a lot of the rank and file of the public will be converted yet to the periodic health examination.

Dr. Dodson made one statement about the school physician that he should be in general practice. I can't agree with him in that, perhaps because I live in a smaller city. I am very certain that the school physicians will not agree with him. Surely, if they were in general practice and competing with the other physicians in the locality, their troubles would be increasing and they are difficult now at best; and I feel sure that it is much better that the school physician be not in general practice in the locality where he is working and be not in competition with the other physicians in that locality. •

There is no doubt but what the examination is a good thing. I am glad to report as far as Peoria is concerned that the number coming in seeking periodic health examinations is increasing. Another thing is that they don't mind paying for it and they are glad if nothing has been found. They are perfectly willing to do that and if we don't find anything abnormal they are perhaps better pleased than if we did find something, but they don't regret the expenditure of the money.

Every once in a while we find some individual with high blood pressure. He doesn't know a thing about it. There is something peculiar about high blood pressure in that it gives a sense of well-being and the patient feels real good and doesn't know that anything ails him, and very often we find high blood pressure where it hasn't been suspected at all. Not long ago a young woman came in. She wasn't sick. She just didn't feel exactly up to her usual strength. She came just for a general examination, and we discovered quite a good deal of albumin in the urine. She had a brother who died from Bright's disease in his twenties and she didn't know what ailed her, yet we discovered that. It probably can be remedied; at least her years will be extended a good deal longer than if she had gone on and not known anything about it.

I think there is another thing that should be emphasized in talking to local clubs and parent-teacher organizations about the periodic health examination, and that is that they are apt sometimes to think perhaps it is a scheme of the doctor to make money, to get a lot of people to come to get examined and increase their

recompense. It should be emphasized that if they go on and become invalids or become diseased, the doctor will get a great deal more money from them in the treatment of the disease than he would from simply some periodic health examination. I often speak about it from a surgical viewpoint, that a mole subject to irritation certainly will not cost near as much to remove as cancer after it has developed from the mole. So that I think we should explain that it isn't a scheme, that it is not really adding to the money that the physician receives from that patient but it really takes from him by preventing something they might have in the future.

Dr. Gottfried Koehler, Chicago: I think I voice the sentiments of everybody here on this occasion that we are indeed very sorry that Dr. Dodson did not have the opportunity to present his very excellent address to a larger audience, particularly a larger audience of physicians, and therefore, I hope that this paper will be published and thus brought to the attention of the medical profession.

There was one point in Dr. Dodson's paper that I just want to emphasize very briefly, viz.: that we ought to rely a good deal upon the existing medical agencies to put this thing over. I think we are all agreed that it is very essential in our future public health work that personal hygiene should be applied after a thorough physical examination, if it is too late to start this with individuals past fifty years of age, as the railroad men pointed out and as we know from our own experience because the foundation for many of these infirmities and defects are laid earlier in life and at fifty years very oftentimes cannot be remedied.

Doctors are not good salesmen. They practice a code of ethics which almost prohibits them from going out and selling their services. They are not like merchants in this respect. Therefore, there is a good deal of hesitancy on the part of the physician to sell periodic physical examinations even to their individual patients. You cannot blame them for that because they have been educated along these lines and, furthermore, it is a question whether that is the best way to put this over. As Dr. Collins points out, you hear it right along, "Well, the doctors are trying to make work for themselves." It is true that when physicians take an active leadership in this work in the community there is always a feeling that they are trying to make business for themselves. I think there has not been as close a relationship between the doctors and the non-medical organizations that could be relied upon to put this thing over.

There is a great difference between the work that the fire insurance companies and the life insurance companies do in this respect. The fire insurance companies maintain in practically every large community a board of underwriters. They watch very carefully the fire departments. They make rules and regulations and they maintain a fire patrol and all that is deemed necessary to save fire losses. The life insurance companies, although they have a commercial interest in the matter, and they are getting large surpluses on account

of the work that the doctors and the health departments are doing in the extension of the life span—in some instances they are paying it out in dividends and in many instances it is clear profit for the life insurance companies; they should get behind this thing and handle it through the medical profession. I do not believe this question can ever be handled en masse. It is a personal proposition. As has been emphasized, this afternoon, it is not directly a question of finding defects but it is a question of correcting habits. A man may have no defects. His habits may have to be corrected. A man may indulge in certain habits. If personal hygiene means simply to taboo everything, then people will look upon the doctors and health officers as joy killers and they will not heed them. People want to get as much happiness out of life as possible. But, therefore, taboos are ineffective. There should be a cooperation between the practicing physicians and the insurance companies, as has been done by one company as pointed out by Dr. Dodson. I think the life insurance companies and the medical profession should get close together on this proposition, like the fire insurance companies have gotten together with the mercantile and business interests of the city and business against fire. The fire insurance companies are very alert in this matter, because what they are doing saves them money. Why should not the life insurance companies act in the same manner?

Dr. Collins: And pay physicians to help them.

Dr. Koehler: And pay them for it, yes. I am sorry Dr. Dodson's paper was not heard by a greater number of people. The industrial and railroad surgeons presented most excellent papers here this afternoon. I think we are fooling ourselves as to the number of people who are having physical examinations. From Dr. Dodson's paper it appears this is growing by leaps and bounds. I think we are lagging very much. With certain age periods, with certain groups like the school children and the industrial workers, this work has started; the physicians working with the railroads have had great results. If that lesson could be brought to the public and to the doctors at large I think it would stimulate this work a great deal.

Dr. Arlington Ailes, LaSalle: I endorse Dr. Koehler's remarks about the life insurance companies, and also I think, like him, that there is a very small percentage of the public availing themselves of these examinations. I think there are two big reasons. I think there is a lack of confidence on the part of the general public that the local practitioner can give them something worth their money. And I think another reason is that when men and women feel all right they will hesitate a long time to give five or ten dollars for a physical examination. It is a different matter when they get a pain, a fever or feel ill. These will drive them to the physician.

I am a full time health officer and would like to get Dr. Dodson's reaction to my discussion or suggestion that may occur to him. We examine school children and give them what we call a screening. The defects are listed and a notice sent home to the parents. Then

the nurse surveys this list of defects and gives to the child, needing one, a little blank on which the major defects found are written. He is then urged to take that blank, accompanied by a parent, to the family physician. These children are stimulated in various ways in the school by the teachers and nurses, and the parents are stimulated by the home visits of the nurse to take the children and blanks to the family physician for a careful physical examination. When they go the minds of the parents are already built up to pay for this service. In fact, at the bottom of the blank is a printed line which states that "This blank in no way implies free service."

What I am thinking of now is to use this same sort of screening with pre-school children, having the mothers bring them to the clinic, giving them an examination with the mothers present, and urge that children with major or remediable defects be taken to the family physician for a more complete examination and advice. They will come to the health department for this preliminary examination because it is free. Also please keep in mind that the examiner at the clinic is in no way connected with the practice of medicine.

Now why can't we carry that same sort of thing on up to the adult group? Let him also get a sort of screening process, if it would be possible to have the personnel in the health department. So then we could detect some of these major defects, and say to this individual: "Go to your family doctor and have a more complete physical examination." Then the medical profession should be prepared and willing to do a good physical examination and work with the health department. This implies, of course, that the health department has the personnel and the doctors to carry out their part. We might then get somewhere.

Dr. Collins: What do you mean by a screening process?

Dr. Ailes: Our screening process is this: The nurse in the school tests the vision and hearing. We go to the school and the nurse brings the children before me and we give them each about two minutes examination of the eyes, ears, tongue, throat, heart, lungs, etc. Look them over, examine the skin for disease, note its texture, elasticity, subcutaneous fat, etc. One, when experienced, can detect a great many things in just a minute or two.

Dr. Collins: Why do you call it a screening process?

Dr. Ailes: Because the term seems to fit. The mother is not present for the history. We do not make a diagnosis or claim that the examination is accurate or complete, and it is made rapidly. It is a sorting process. Take the tonsils, for instance. We can't take the child if he has had repeated attacks of tonsillitis, rheumatism, etc., with any certainty of a reliable answer. If the tonsils look a little red or abnormal, we indicate the defect with one X. If they show considerable hyperplasia, showing enlarged veins and adhesions to the pillars, enlarged tonsillar glands and other evidences of repeated infections, we indicate the fact by two X's, which means that the child should be taken to the doctor for a physical examination. If there is still

greater disturbance, we give three X's, which means that in our opinion the child should be taken to the doctor for examination and advice without delay.

Dr. Collins: I just wanted to know what screening meant.

Dr. Ailes: That is what it means. We do not aim to make an exact diagnosis, but aim to screen the children—those needing attention from those who apparently do not. Not all children are urged to go to the family physician, but if double or triple X's appear on the child's examination card, it is the nurse's duty and the teacher's duty to encourage that child to take the slip which we give him to the family doctor and have him make the examination and advise the remediable measures that he thinks indicated. We then award that child certain merits, if the physician indicates he needs no attention or when the defects are removed. This is the way we work with the school child through the family physician.

I was asking Dr. Dodson's reaction to a plan that would similarly screen the infant, pre-school child, high school child and adult, where the examining physician would not be engaged in private practice. When they went to the doctor then they would be in a frame of mind to pay for the service. The doctor then must have the proper attitude and give the child or person a careful physical examination or there will be a very poor reaction to the whole campaign.

We have this plan in operation for the infants, school children and high school, and I think it is practical to use the same system for pre-school children. I am wondering if it could not be made applicable to the adult.

Dr. Charles H. Miller, Chicago: I would like to add something to the discussion. It happens that I am charged with the presentation of a plan of periodic health examination at the Health Exposition in Chicago. And I am astonished at the attitude of children compared to adults as they go by that booth, at the degree of intelligence which they show along health subject lines. We haven't half the trouble to get them to appreciate the value of maintaining health, of recognizing what health examinations mean, as we have with the adults, and that enables me to speak on the subject of what may we do to bring in the older individuals which, as Dr. Koehler has stated, we are going to have in increasing number as the years go by.

It happened to me that for thirty years I have been the physician who attends to the ailments of the South Side division, men employed by the South Side division of the Chicago Elevated Transit Company, that consolidated company, regarding whose personnel Dr. Fisher has been telling you. These men maintain a mutual benefit association for which I have been physician for that period. These men, as he told you, are required to be examined by their medical officer, they are examined from a traveling car, etc., and they are required to come back at stated intervals to be examined, and a large number of them under my control or in my clientele come to me to find out where they are at. They are perfectly sold on the wisdom of

this examination. They realize its value to them, and these men, many of them—I have been personally acquainted with them in my capacity of medical officer for a long period of time—they come in regularly every three or four months to find out how they are getting along, how they are, and it is through this form of dissemination of knowledge that the older people will be informed, how they will be taught the wisdom of this. We don't need to talk about the value of that. We know it. It has come within my experience within a few weeks how men charged with operating these trains and motors have been found to be in a condition of most precarious danger, not alone to themselves but to everybody else under their care, and who have been caught by Dr. Fisher's organization. And there is no difficulty from the standpoint of their Union with that at all. They handle it so nicely that there has been no difficulty and yet they are all Unionists.

Dr. John M. Dodson, Chicago (closing): I want an opportunity to set myself right. I perhaps spoke a little hurriedly,—it is not in my paper with reference to the school physician. I do not mean to say that I think there is no room for such a functionary, but there are a number of places, especially in some of the states, where the attitude of the school physician and the health office representatives are antagonistic,—a very unfortunate situation. I think the school physicians have attempted in some places to overreach their proper prerogative. The purpose of this whole movement is to get every child and every individual into the hands of the family doctor. He is the one ideal examiner for that individual all the way through. Why? Because he can follow him and see that the correction of physical defects or amendment of bad habits is carried out. Unless that is done, the examination is useless.

What Dr. Collins said with reference to the objection raised, that the finding of some kind of defect might alarm the individual, is to my mind a puerile objection. Is it better that a man become tuberculous and remain ignorant of it for fear he will be scared about it or should he know the truth and be directed as to what to do? Any physician who is fit to practice medicine at all should have the ability to tell those facts to that patient in such a way as not to alarm him unduly.

No, doctor, I am not against the school physician; but I do feel that he should be directing the child to the family doctor, who is the person to whom the client, child or adult, ought to go for thorough examination and advice. These preliminary inspections (I like that word. It is not an examination but a preliminary inspection), these preliminary inspections are being made by nurses or by teachers trained for that purpose. That is being done in the city of New York, also in Detroit and in many smaller cities. The object should be to suspect something out of the ordinary and then direct them to the family doctor. This summer round-up pre-school campaign is doing that.

I think we made a mistake in our rather unyielding attitude with reference to some of the plans of the parent-teacher organizations. For example, a great effort has been made to have these children sent to the offices

of the family physicians. Two things happen when that is done. First, very many of them do not go; there are nothing like as many examinations made by physicians in their offices as are made when all are asked to assemble at one central place at the same hours; second, there is lost the spectacular propaganda effect of the lining up in one place at one hour on a definite occasion of these pre-school children. We are trying to educate the public about the value of these physical examinations. When the nurses, teachers or members of the parent-teachers' association have gone around from home to home in that community and rounded up every child that is going to school in the coming autumn for the first time, asking them all to come to a definite place at a definite hour, it has much the same effect as a circus parade. It is an educational measure of value. Of course, that cannot be continued indefinitely. We do not expect the doctors to give their services free for examination of these children indefinitely; but it will take three, four or, in some places, more years perhaps to educate the people in that community to the understanding that every one of those children ought to be examined at regular intervals through life. And when that is done, we shall not need to worry about the pre-school or any other pre-period examination.

I am sure many fail to realize what a tremendous thing is going on in the schools of this country today; what a marvelous change has come over the attitude of the educational world in the last ten or fifteen years with regard to health and all that pertains to it. We are growing up a generation of children who know about health, who are enthusiastic about it, as Dr. Koehler has said, much more intelligently, in my judgment, than a good many doctors. I want to tell you that when that generation of young people goes out into the world of affairs as adults, we will have a totally different attitude in this country with reference to public health, to private health, health examinations and all those things that promote the health and welfare of the community. I wish I could live another twenty-five years to see it. I know it means a revolution in the world of health.

PITKIN'S SPINAL ANESTHESIA

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Strictly speaking one should not use the term spinal anesthesia—spinal analgesia is more descriptive. Some may prefer the term spinal bloc, lumbar anesthesia, or root bloc. In any event, we wish to describe a method of destroying the (protopathic) pain sense by the introduction of drugs into the spinal canal. Historically, it may be of interest to know that an American neurologist, Corning, in 1884, first punctured the canal with a hollow needle, about three years before it

was done by Quincke. From that time dates an important era in which this procedure has been used as a diagnostic and therapeutic agent in an ever widening field.

The process of abolishing pain by this practice has been taken up with enthusiasm from time to time, only to be dropped and severely condemned when mortality records mounted. However, patient, careful men who felt confidence continued its use, eliminating danger when possible and improving the technique as experience warranted.

The last three or four years have witnessed a wide general interest in this subject, and pain-taking workers seem to have developed it to a point where anesthesia has been satisfactory, consistent with a high degree of safety, when used with discrimination. We should not make an abusive use of any important procedure.

I should like, here and now, to warn you against the attempt of substituting parts of one technique for another in an effort to improve any accepted standard. It may lead to disaster.

All work along this line has been done by surgeons who felt there was much to be desired from the usual forms of anesthesia. Today most often surgeons will have to perfect their technique and personally administer this anesthetic. He should, therefore, be familiar with its reactions and dangers, to be master of the situation. This does not mean an expert anesthetist should have no place in the team. He has a definite function, and to fulfill this must be somewhat of a psychoanalyst.

The method I use and describe was developed by Dr. George P. Pitkin with associates. It is, therefore, known as the "Pitkin Method of Controllable Anesthesia."¹ It is a monumental contribution to medicine. There have been two solutions used by him—the heavy, 40% novocain, and light, 10% novocain. The solution known as Spinocain is the light (1.0005). It is the use of this I wish to discuss. Novocain is one of the cocaine group, and it is common knowledge that these drugs have a selective affinity for sensory nerves. It is a pharmacological fact that in the entire central nervous system the motor mechanism is particularly resistant to anesthesia.

It is known that a marked fall of blood pressure and the inability to control fluids when introduced into the spinal canal led to many

early disasters. This was due largely to the improper understanding of the hydrodynamics of a spinal fluid and the solutions employed.

Practically all pain reducing drugs when introduced into the canal mix and diffuse generally with spinal fluid. The Pitkin solution—spino-cain—differs from all others by being lighter in specific gravity than spinal fluid (1.004-7) and remains in fluid mass. The anesthetic substance in spinocain is 10% novocain in combination with strychnine, gliadin (from wheat starch), alcohol and normal saline.

Now, the indications for spinal do not include all operations. It is not generally recommended for work above the diaphragm—at any rate with the accepted technique as practiced. It can be used at any age—none apparently too young or too old. I have used it many times with the most complete success in patients past eighty years. Most of you will agree that this age is not usually considered a prime risk.

One should say in passing that local infections, osteomyelitis, acute inflammation of brain and cord, brain tumor, or tabes, should be excluded. In other words, organic disease of the central nervous system or integument. These can be accepted as reasonable omissions.

The first point in technique is a faultless spinal puncture, done under strict surgical asepsis with the right type of needle. This may sound more simple than it proves to be in practice. The needle of choice was described by Pitkin. It is smaller—usually 20 to 22 gauge, made of flexible rustless steel, $3\frac{1}{2}$ inches long, and has a 45 degree bevel. This is important. It is sharp only on the tip, it cuts a trap door in the dura which prevents seepage of spinal fluid, and does little if any damage if a nerve is touched.

Puncture is always made in the midline with the spine bent forward, the patient lying on his side; never in the sitting position. The site of puncture may vary somewhat but always in a lumbar interspace. These are not always the same width, and by moving up or down one space the introduction should be easy. The rich venous blood supply about a vertebra may stain the fluid if a small vessel has been opened en route. There is less danger of injuring a vessel and spoiling a tap if one adheres strictly

to the midline. Even when this is done, and one feels certain he has entered the canal, the fluid coming from the needle may be pure blood. This is practically always due to the fact that you have completely traversed the canal and punctured a vein on the other side. By withdrawing the needle slightly and rotating it in the long axis the fluid will clear after a few drops. While the pressure in the canal is somewhat higher (6-8 m.m.) than in the vein (3-6 m.m.) and no harm will result from this accident, it is best not to introduce spinocain except in a clear fluid. There is some irritation of the meninges when blood is mixed with spinal fluid.

It is possible and practical by the proper choice of an interspace, the amount of spinocain and its expansion, to secure complete surgical anesthesia as high as the diaphragm, lasting 30 minutes to $1\frac{1}{2}$ hours. It is also possible to limit the area of anesthesia to the perineum in case of hemorrhoids, fistula or repair. The tilt of the table is an important point in technique. It is placed in various degrees of Trendelenburg—the number is accurately determined by an instrument known as a tiltometer. After spinocain injection the patient is kept flat or in a moderate degree of Trendelenburg, thus assuring an adequate blood supply to the terminal vessels of the brain. This is maintained for a few hours after the operation is completed. When the patient is returned to his room, a good practical rule is to keep him elevated till sensation and movement return.

One might mention at this time that the usual preparatory treatment is not necessary as with gas or ether. Withholding water, so hazardous or uncomfortable at times, is not necessary. Patients may have food and fluids any time before coming to the operating room. Indeed, water is usually given during the operation. Someone asks—does he vomit? Well, if so, he at least has something to come up, and its presence in the stomach is not the cause.

The blood pressure is previously taken, then at frequent intervals during the operation. This may vary from 10 to 30 points, even more, and requires no special attention, unless it drops markedly, and there develops pallor, cold sweats and air hunger. By increasing the degree of

table tilt with perhaps adrenalin and ephedrin this will return to normal.

Applicability of spinal bloc covers rather a wide field, when we recall that in some cases any inhalation anesthetic is contra-indicated. The hemolysing effect on blood, the irritation of respiratory tract, the possible urinary suppression are at once removed from the list of more important complications. Cardiacs with broken compensation are none the worse after this form of anesthesia,—certainly a matter of much comfort to the surgeon who must occasionally operate on such a case or stand by and witness a demise because of fear.

Technique. Let us assume we have hemorrhoids. You know this requires complete relaxation. We select an interspace—best the 4th. 1 c.c. ephedrin-novocain is introduced by first making a wheal at the site of the proposed puncture, then carrying the remainder of the solution along the tract of the spinal tap. Ephedrin, you know, is a peripheral vascular stimulant. The presence of novocain renders this procedure painless. Perhaps I should have mentioned that a preliminary narcotic, morphine, gr. $\frac{1}{4}$ or H. M. C. No. 1 is given one hour before. This is not for the purpose of aiding the anesthetic, but to act as a sedative to the patient.

Having introduced the ephedrin-novocain solution, which guards against a fall of blood pressure and at the same time destroys the pain sense, the Pitkin needle is introduced into the canal. Presence of clear spinal fluid is evidence of a good tap. If one feels he has punctured the dura, as recognized by a dull snap, and the spinal fluid does not flow, rotate the needle on its long axis. Occasionally the net-like arachnoid will lie against the opening, and be dislodged by this procedure.

Another Luer syringe containing 2 c.c. of spinocain is attached to the needle after 15 or 20 drops of spinal fluid have been permitted to escape. Aspirate 1 c.c. of spinal fluid, inject 1 c.c. of the mixture, aspirate another c.c. and inject the contents. This is known as barbotage, and we now have a 4 c.c. total expansion. This is a 50% spinocain solution or 5% novocain.

The table is placed in 10 or 15 degree Trendelenburg which causes the solution to rise toward the tip of lumbar spine and bathes the

nerve roots with the anesthetic. It requires about 10 minutes for anesthesia to be complete. This begins in the perineum, extends to the legs and finally on the lower abdomen. The patient should be told what to expect, a sense of tingling as if going to sleep, and finally inability to move the toes. It is well to point out these phenomena, at the same time assure him that things are going well. This will inspire confidence and you find your patient following the procedure with keen and intelligent interest.

Go ahead now with the most satisfactory anesthetic you have ever known. A moderate degree of elevation should be maintained for 2 or 3 hours. When movement and sensation have returned to the feet lower the bed.

508 The Temple.

REFERENCE

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OBESITY AND LEANNESS*

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The prevailing conception of obesity and leanness is based on considerations of caloric equilibrium. It is held that obesity is primarily an excess of body fat; that changes in body fat depend on caloric intake and output; that if the caloric intake is excessive, fat is deposited; that if caloric output is excessive, leanness results; and that "normal" body weight simply means a balance between caloric intake and output. Some writers maintain, however, that obesity is due to diminished caloric output rather than to excessive caloric intake. They ascribe the diminished caloric output to low basal metabolism, to diminished specific dynamic action of food, or to decreased caloric production due to insufficient muscular activity.

In this article the author analyzes these ideas in the light of available experimental data and clinical observations. A conception of obesity and leanness is offered that seems to permit a uniform interpretation of the apparently contradictory metabolic and clinical findings reported in these conditions.

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1. An Analysis of the Factors Concerned in Caloric Equilibrium as Related to Obesity and Leanness

In the first place it is necessary to analyze the factors concerned in maintaining caloric equilibrium to ascertain if there are striking differences between the "normal," obese and lean subject.

Basal metabolism. Determinations of the basal metabolic rate made by many investigators on a large number of obese and lean persons indicate that in the large majority of cases the variation lies between $\pm 10\%$, which is the range for normal individuals. Occasional abnormal rates have been about equally divided between high and low values so that it has been concluded that the basal metabolism in these conditions is, as a rule, normal.

A consideration of the definition and mode of calculation of the basal metabolic rate reveals, however, that the statement that basal metabolism is "normal" in obesity and leanness, may be misleading unless all the factors that enter into the calculation are kept in mind. When the basal metabolic rate of obese and lean persons is calculated, the "normal" standards for the patient's sex, age, height and weight, obtained from statistical tables, are simply those of obese and lean individuals. The basal metabolism of an obese person is, in fact, compared with that of another obese person, and the metabolism of a lean person is compared with that of another lean person. A variation of $\pm 10\%$ in basal metabolic rate in obesity and leanness only indicates that in these conditions the basal metabolism of similarly built individuals varies little. And, unless one keeps in mind the fact that by definition the basal metabolic rate is an expression of the number of calories produced per square meter of skin surface, one is likely to be misled. The statement that the basal metabolic rate in obesity and leanness is

TABLE 1

The "normal" weight for the patient's sex, age, and height was taken from tables in Joslin's Treatment of Diabetes, 1928. The 24 hour basal metabolism of the controls was calculated according to the Aub-DuBois Standards. The 24 hour basal metabolism of the patient was determined by indirect calorimetry.

The basal metabolic rates were calculated the usual way according to the Aub-DuBois Standards.

The "basal metabolic ratios" were obtained by sub-

tracting the values in column 5 from those in column 3, and expressing the difference in per cent. of the values of column 5.

No.	Weight of patient Pounds	24-hour basal metabolism of patient. Calories	"Normal" weight. Pounds	24-hour basal metabolism of normal weight person. Calories	Basal metabolic rate	Basal Metabolic "Ratio"	Remarks
1	286	1742	130	1428	-20.8	+22.0	
2	349	2264	129	1405	+4.5	+61.5	
3	195	1705	123	1395	+1.0	+22.2	
4	292	2170	131	1434	+8.3	+52.0	
5	222	1671	136	1505	-9.3	+11.3	
6	250	2581	133	1439	+37.0	+79.5	
7	203	1810	132	1489	+2.0	+31.6	
8	182	1570	125	1350	+0.0	+16.6	
9	266	2090	126	1370	+3.4	+52.5	
10	228	2160	134	1785	-8.9	+21.0	
11	240	2180	142	1530	+13.8	+42.5	
12	205	1795	90	1360	-7.6	+32.0	
13	218	2030	127	1360	+18.7	+49.3	
14	190	1760	121	1340	+6.2	+32.4	
15	232	1735	123	1402	-5.9	+23.7	
16	257	2060	124	1330	+14.1	+55.0	
17	260	2090	126	1386	+10.8	+50.8	
18	226	2000	118	1376	+13.3	+45.4	
19	225	1912	129	1450	+3.9	+31.9	
20	183	1625	116	1435	-6.8	+10.2	
21	178	1400	114	1220	-2.3	+17.2	
22	265	1920	133	1470	-0.4	+30.6	
23	264	2370	125	1375	+25.0	+72.2	
23	255	2310	125	1375	+24.4	+68.0	4 weeks later
24	226	1545	124	1370	-13.0	+12.8	
25	252	2150	139	1510	+10.4	+42.4	
25	231	2180	139	1510	+15.0	+44.4	4 weeks later
26	186	1500	114	1350	-9.9	+11.1	
27	207	1780	120	1330	+6.4	+18.8	
28	310	2880	147	1480	+32.4	+94.6	
29	235	2050	150	1820	-15.5	+12.6	
30	287	1890	130	1460	-6.4	+29.5	
31	185	1640	137	1510	-4.8	+8.6	
32	228	1870	126	1370	+5.3	+36.5	
33	193	1640	141	1590	-10.1	+3.1	
34	233	1900	118	1280	+9.2	+48.4	
35	258	1649	142	1435	-20.1	+14.9	
35	258	1592	142	1435	-22.7	+10.9	1 week later
36	160	....	127	1370	+46.0	.....	9-20-26
36	207	1600	127	1330	-0.6	+20.0	8-20-27
36	207	2428	127	1330	+60.0	+82.5	1-12-28
36	208	2871	127	1330	+73.3	+116.0	8- 8-28
37	241	2190	130	1368	+9.8	+60.1	
38	176	1831	90	1269	+11.4	+44.3	
39	288	2022	134	1494	-1.6	+35.4	
39	266	3080	134	1456	+57.7	+111.6	1 year later
39	269	2450	134	1456	+23.0	+68.2	1 month later
40	176	1540	116	1079	+0.2	+42.7	
41	147	1800	126	1500	-0.7	+20.0	
42	171	1680	123	1395	+5.0	+22.1	
43	217	1972	121	1385	+11.0	+42.4	
44	297	2220	119	1305	+15.0	+70.0	
45	204	1750	117	1288	+7.3	+35.9	
46	197	1775	127	1350	+8.0	+31.4	
47	200	1554	137	1480	-11.4	+4.3	
48	215	2003	119	1305	+20.0	+53.5	
49	184	1134	123	1378	-30.3	-17.7	
50	199	1755	139	1487	+2.5	+18.1	

"normal" means only that per square meter of

surface the obese, the lean and the average normal weight individuals produce approximately the same number of calories. But, as a matter of fact, the total basal metabolism of an obese person is generally greater than if that obese person were normal in weight; and the total basal metabolism of a lean person is less than if that lean person were normal in weight. Obviously then, the statement of the basal metabolic rate of the obese and lean does not afford a direct comparison with corresponding individuals of normal average weight.

In order to obtain direct information or a comparison between the obese and lean, and the normal weight individual the author believes that the 24-hour basal caloric production of obese and lean subjects should be compared with that of normal average weight persons of the same sex, age and height. When this is done a marked difference is found, obviously. For example, an obese patient weighing 349 lbs. has a total 24-hour basal metabolism of 2,264 calories with a basal metabolic rate of $+4.5$; but if this patient were of normal average weight—129 lbs.—the normal total basal metabolism would be only 1,405 calories. The extra weight with increase in body surface has caused an increase in total metabolism of 859 calories, or an increase amounting to $+61.5\%$. It is suggested that the per cent. increase or decrease in the 24-hour basal metabolism of an obese or lean subject over or under that which would be presumably manifested if the subject were of normal average weight be called the *basal metabolic ratio*.

The metabolic ratios of fifty unselected cases of obesity observed in our clinic are shown in table 1. A study of this table reveals that thirty-one of the fifty cases had a basal metabolic rate within $\pm 10\%$. There were four cases between -10% and -20% and three cases below -20% ; eight cases between $+10$ and $+20\%$, and three cases above $+20\%$. These findings conform with those of other observers. However, when the basal metabolic ratios are calculated by comparing values in column 3 with column 5, the ratio is positive in all but one, that is, the total caloric production under basal conditions is greater in all but one of the obese patients than it is in corresponding subjects of normal average weight. It is to be noted that the metabolic

TABLE 2

The data on which the calculations are based have been taken from Benedict and Joslin's paper.⁵ For interpretations of columns see Table 1.

Name	Weight of Patient Kgs.	24-hour basal metabolism of patient. Calories	"Normal" weight Kgs.	24-hour basal metabolism of normal weight person Calories	Basal Metabolic Rate	Basal Metabolic "Ratio"
T. M. C. . .	43.5	1292	62.3	1502	— 4.4	—14.0
Miss J. . . .	43.3	1121	53.6	1350	— 9.0	—17.0
Miss A. C. .	42.6	1037	62.3	1492	—18.0	—30.0
Miss E. W. .	40.5	1247	56.8	1377	+ 3.5	— 9.4
Miss S. C. .	37.4	974	55.4	1358	—12.0	—29.3

ratios vary widely, however, from $+3\%$ to $+111\%$, the average increase for 100 lbs. overweight being $+30\%$. This compares well with Lauter's data (-1) obtained by a similar calculation.

The metabolic ratio of five healthy underweight or lean subjects as observed by Benedict and Joslin⁵ is shown in table 2. It is negative in each case indicating that the 24-hour caloric production under basal conditions of underweight healthy subjects is considerably less than that of corresponding normal average weight subjects.

The fact that a comparison of the basal metabolism of obese persons with that of normal weight persons yields high values for the obese is not new. (Lusk.) Little attention has been paid to this fact, however, because it was explained as due to the larger surface area of the obese. The body surface of obese persons is, of course, considerably larger than the body surface of corresponding persons of normal weight. Thus the surface area of our obese cases recorded in the table varied from 1.88 sq. m. to 2.50 sq. m., while the surface area of normal weight persons within the same height limits varies between 1.4 sq. m. and 1.65 sq. m. It is a well established fact that the basal metabolism of normally built persons is fairly proportional to their surface area, and this relation holds true to a certain extent for persons with abnormal surface areas such as cases of obesity, also. In fact this relationship of body surface to basal metabolism has been expressed mathematically, and it is possible to predict with this formula the basal metabolism of normal persons from the age, sex and body surface. The empirical value of the surface area law is demonstrated by the fact that the basal metabolism of large persons with equally large body surface is quite similarly high whether they are obese or not. Lauter examined the basal metabolism of extremely muscular athletes with body weights ranging between 200 and 320 pounds and surface areas

ranging between 2.1 sq. m. and 2.4 sq. m., and found their 24 hour basal metabolism varying between 1944 and 3005 calories, which is quite comparable with the basal metabolism of obese persons in similar body weight and surface area range.

But while the surface area law is a valuable empirical law for metabolic calculations, it cannot give us any clear information as to the origin of the higher metabolism in obesity. The basis of the relationship of surface area to basal metabolism is not yet clearly understood, and the existing statistical data do not apply to patients with "odd deposits" or "rolls of fat." It has been thought that larger body surface requires higher metabolism in order to maintain the body temperature which otherwise would be lowered by the increased heat elimination through the larger body surface. It is believed by many that the basal metabolism is proportional to the surface area because of some more fundamental factor which is itself proportional to the surface area. Thus, according to Benedict and Talbot,² the body surface has no significance in connection with heat production, except that it is normally proportional with the active mass of protoplasmic tissues, and this active mass of protoplasmic tissues determines the fundamental metabolism.

Regarding the question of why obese persons have a higher basal metabolism relatively, the following considerations are suggested. Some part of the excess basal metabolism of the obese may be accounted for as the metabolism in the excess fat tissue; but this part can account for but a fraction of the basal metabolic ratio. It is seen from our table that 100 lbs. overweight is usually associated with basal metabolic ratios around plus 30 per cent. If all of this excess were due to metabolic activity in the excess fat tissue, this fat tissue would be from 1/3 to 1/2 as active metabolically as the rest of the body. This is hardly conceivable. Undoubtedly some tissues developed along with the excess fat of the obese, such as additional interstitial tissue, vessels, skin and subcutis may be metabolically quite active and even the mass of fat cells proper may have, at least at times, some metabolic activity,³ but it is probably safe to say that the larger part of the observed excess basal metabolism cannot have its origin in the excess tissues.

If we consider an obese person as composed of excess fat tissue and basic tissues, we must conclude from the above that the larger portion of the excess metabolism originates from the basic tissues as an actual increase in their normal metabolic activity. All or only some parts of the basic tissue mass may be involved. Thus

the work of the heart is evidently increased in the obese, even at complete rest. And the respiratory movements of the heavier chest require additional energy production in the respiratory muscles; furthermore, obese persons are frequently dyspneic, which necessitates increased work of the respiratory muscles, even at complete rest, and some may even be orthopneic. This extra activity of the heart and the respiratory muscles can easily account for from 5 to 10 per cent. in the basal metabolic ratio of the obese.

Another factor which may contribute more or less heavily to the positive basal metabolic ratio of the obese, representing an increased metabolism in all basic tissues, is the effect of the so-called "luxus consumption." Grafe and his collaborators⁴ proved that prolonged overfeeding increases the basal metabolism of most persons; the increase being called "luxus consumption." The increase of the basal metabolism brought about by previous overfeeding is, according to Grafe, less marked in obese than in normal persons, but even so it may be responsible for some portion of the high basal metabolic ratio in obesity, considering that many obese persons are in a state of chronic overfeeding. This factor may possibly account for as much as 20 per cent. in the value of the basal metabolic ratio of certain obese persons.

In other cases the high basal metabolic ratio may be due to increased metabolism in all of the protoplasmic structures because of over-activity of the thyroid gland. Obesity and hyperthyroidism are by no means incompatible, as has been reported by others. We have also observed several forms of this combination, as the following cases illustrate:

Case No. 36: A woman 48 years old who was always overweight. She weighed 225 pounds in 1925. A year later she developed a toxic adenoma with a basal metabolic rate of plus 46 per cent; her weight was then 146 pounds. Thyroidectomy in October, 1926, was followed by marked improvement. In August, 1927, her weight was 207 pounds, pulse 66 and basal metabolic rate minus 0.6 per cent. In January, 1928, she again complained of nervousness, palpitation of the heart, increased perspiration, etc.; a recurrence of the adenoma was found, the pulse was 108 and the basal metabolic rate was plus 60 per cent. Her weight was still 207 pounds. During the following eight months the basal metabolic rates varied between plus 60 per cent. and plus 73 per cent, the weight varied between 200 and 212 pounds. Operation was refused by the patient.

Such cases are of course exceptional. But obese patients with clinical symptoms or signs suggesting some "fruste" form of hyperthyroidism are not so infrequent:

Case No. 38: A girl 16 years old of the adipose-genital dystrophy type. She is extremely short, only 58 inches tall and extremely obese. The sexual organs are in an infantile stage, and she has not yet menstruated. There is present a marked typical fine tremor of the hands, pulse rate between 110 and 120; extremely low sugar tolerance; the patient is highly irritable and nervous. Basal metabolic rate is plus 11 per cent; basal metabolic ratio is plus 44 per cent.

The following case demonstrates that "hyperthyroidism" may cause extremely high increase of the basal metabolism in an obese person without any clinical symptoms:

Case No. 39: A woman 27 years old who had no complaints except of overweight. The physical examination was negative; the basal metabolic rate was minus 1.5 per cent; basal metabolic ratio plus 35.4 per cent. A low caloric diet was prescribed and she was advised to take 3 grains of powdered thyroid gland daily. Instead of reporting weekly as instructed she continued with the diet and thyroid medication, under the supervision of her family physician, for one year. She felt perfectly well all the time. No signs of hyperthyroidism were observed when she was seen at the end of the year, but her basal metabolic rate was plus 53.7 per cent., the basal metabolic ratio being plus 111.6 per cent. A month after she discontinued thyroid gland medication her basal metabolic rate was plus 23 per cent., the basal metabolic ratio plus 68.2 per cent.

It is possible that a "latent hyperthyroidism" as in the case cited is partly responsible for high metabolic ratios of many obese persons, although no clinical symptoms or signs are observed. Hypersensitiveness to orally administered thyroid substance occasionally encountered in obesity may be due to "latent hyperthyroidism."

Specific Dynamic Action of Foods. The specific dynamic effect of foods usually plays but a small part in the 24 hour total caloric output. It amounts, under normal feeding conditions, to about 200 to 400 calories in 24 hours. The majority of normal persons respond to protein meals with a 12 to 19 per cent. increase in their basal metabolism. The specific dynamic effect of meals containing only carbohydrates or fats is considerably less.

Plaut,⁶ Grafe,⁴ Strouse⁷ and recently Bernhard⁸ claim that the specific dynamic effect of foods is usually abnormally low in obesity. Thus they hold that a saving in oxydizable body materials results which must lead in time to considerable fat deposition. They consider the low spe-

cific dynamic effect to be a primary characteristic and an important etiologic factor in obesity.

On the other hand, in a large number of normal persons Benedict and Carpenter⁹ found the specific dynamic effect in several instances as low as 3%, and as high as 33%, and Lauter's careful tests on obese persons resulted in the finding that the specific dynamic effect of foods varies just as widely in the obese as in the normal. The question as to whether the specific dynamic effect of foods is abnormally low in most cases of obesity is therefore not yet settled. Apparently it is normal in a number of cases, and in some cases it is even high. Furthermore, even in cases where it is definitely low the question remains as to its *etiologic* importance. Many obese persons habitually overeat and become accustomed to big meals including large amounts of protein. It is reasonable to expect that a large test meal consumed by such persons will stimulate their basal metabolism to less extent than a similar test meal ingested by normal weight persons with moderate eating habits. In these cases the low specific dynamic effect may not be a primary characteristic, but merely one of the consequences of chronic overeating.

Muscle activity. The muscle activity constitutes a variable but important part in the 24-hour caloric output; it may equal or even considerably surpass the basal caloric production. Unquestionably, any normal person will deposit fat, if his usual muscular activity is decreased without the food intake being decreased. Therefore, the question whether or not the caloric production derived from muscular activity is diminished in obesity must be considered.

Theoretically, this might be a factor because of one or both of the following possibilities:

1. Physical work is known to increase the basal caloric production in every normal person during the time of actual work and also for some time (15-30 minutes) after the work was done. This increase during and after physical work may be called the "specific dynamic effect of muscular activity." It might be possible that this specific dynamic effect of muscular activity is diminished in obesity. Obese persons, then, would be able to perform the same amount of physical work with the expenditure of fewer calories than normal persons.

2. Because of an habitual inactivity, obese persons might generally perform less physical work in their everyday life than do normal persons, thereby saving a certain amount of calories in their 24 hour total caloric output.

As to the first possibility: metabolic experiments made on the "specific dynamic effect of muscular activity during work" do not indicate a reduction of this effect in obesity. On the contrary, all investigators agree that the majority of obese persons show a definitely greater increase of their basal metabolism during muscular exercise than do normal persons performing the same amount of work. Furthermore, it is agreed that the "specific dynamic *after effect* of muscular activity,"—noticeable in the rest period immediately following the work—is also somewhat higher in obese than in normal persons, if the work done was sufficiently hard to require noticeable effort^{1, 8, 10}. However, Bernhardt⁸, who recently studied the after effect of *slight* work on the basal metabolism of normal and obese persons, found that under such conditions the "after effect" was frequently considerably less pronounced in the obese than in normal persons. In some obese cases the after effect was negative, that is, the increase of the basal metabolism during work was followed by a decrease in the rest period below the control level of the basal metabolism. In several cases the negative phase in the rest period nearly equaled the previous positive phase in the work period; accordingly work was done by these obese subjects without any appreciable final increase of their basal metabolism. Bernhardt is inclined to attribute great importance to this phenomenon in the genesis of obesity. It will be necessary to await the results of confirmatory experiments before correctly evaluating this peculiar behavior. It will be noted, however, that only less than half of the obese persons examined exhibited this behavior in Bernhardt's experiments, the rest of them responding in a way not different from the normal. The "negative phase" seems to occur only in obese persons with unusually high basal metabolic levels.

As to the second possibility: do obese persons habitually perform less physical work in their everyday life than normal persons? By its nature this question does not lend itself to experi-

mental investigation, and therefore, in trying to answer it we will have to be satisfied with estimations based on everyday observations. The fact that an obese person has to move a greater weight with every step he makes indicates that, other things being equal, the obese would perform more physical work in his everyday life. On the other hand, it cannot be doubted that many obese persons more than compensate for this excess of work by what they save by their lack of impulse to muscular activity. Frequently, of course, the "laziness" of the obese is chiefly secondary, being simply due to the effect that overweight would have on the activity of any normal individual. In other cases, however, the laziness is evidently a primary, genuine characteristic. But it should be kept in mind that not all obese persons are physically inactive. Quite a few of them show remarkable muscular activity although greatly handicapped by their excessive weight, shortness of breath, profuse perspiration, etc. It is well known that some of the wrestling champions who certainly have plenty of exercise possess not only powerful muscles but excessive fat deposits as well. It is a fact that many normal individuals who have been accustomed to strenuous physical work gain weight later when they settle down to a more quiet life. But even complete lack of physical exercise does not always result in obesity. Some children, for instance, forced to inactivity by infantile paralysis or by organic heart disease will become obese, others will not. There is a class of constitutionally *thin* persons, the asthenic type, who are characteristically inactive with lack of impulse, and fatigability. Among *normal weight* persons we find some physically extremely active as well as some extremely inactive types. Evidently there is no parallelism between body-weight and amount of muscle activity as far as different persons are concerned, although there is a parallelism, to a certain extent, between these two features, in the same individual.

Accordingly there is no evidence that the caloric production derived from muscle activity would be generally reduced in obesity.

Food Intake. The common idea that in obesity there is an increased consumption of food, and in leanness a diminished consumption of food does not hold true for a number of cases in both

groups. It is true that a large number of lean persons have a poor appetite, eat little and prefer foods low in carbohydrate and fat content; but another class of lean persons is conspicuous for its excellent appetite; others again do not differ in their eating habits from the majority of normal weight persons. Similarly, many obese persons are characterized by increased appetite and food intake. This is in accord with the higher basal metabolism of these persons mentioned above which calls for more caloric intake. But a number of obese persons apparently have no abnormal eating habits, and some of them eat surprisingly little.

Relation of Food Intake to Exercise. Regardless of the absolute amount of food intake and muscular exercise it might be possible that the difference between these two factors is a constant characteristic in obesity and leanness. We should expect then to find always a relative excess of food intake over muscular activity in obesity and a relative excess of muscular activity over food intake in leanness.

Experimental data concerning this relation in obese and lean persons are not available, evidently because of the technical difficulties inherent in such experiment. However, common observations offer sufficient evidence to show clearly that the expected discrepancy between food intake and exercise is not necessarily present in obesity and leanness. Thus it is a common observation that many lean persons, with poor appetite and little food intake, are very inactive at the same time. In contradistinction to these "asthenic leans," another lean type, the "hypersthenic lean," characterized by overactivity, is frequently a good or even excessive eater. No discrepancy is evident between the eating and exercising habits in these lean individuals. Similarly, obese "big eaters" are frequently quite active, while a number of obese persons, of the inactive, lazy type, justly claim moderate eating habits. In other cases of obesity a relative excess of food intake over muscular exercise is of course quite apparent on everyday observation. It may be objected at this point that a slight difference in the balance might not be detected on simple observation, and that such slight discrepancy may yet be present in all cases, resulting in time in considerable gain or loss of weight. This matter

will be considered later and it will be shown that such is not the case.

Summary. Having compared the factors of the caloric intake and output in obesity with those in normal weight persons, we have found only one factor which shows a uniform anomaly in practically every case of obesity, namely the total basal metabolism. But the abnormal values of the basal metabolism observed can hardly be considered as of etiologic importance, since this anomaly consists in an elevation and not in a decrease, as might have been expected, of the basal metabolism. We find that the basal metabolism of obese persons when compared with the basal metabolism of average weight persons is usually high. This, we believe, is partly due to the metabolism of the excess fat tissue and additional interstitial structures, partly to an increase in the work of the heart and respiratory muscles, partly—in some cases—to *luxus-consumption* on account of previous over-feeding, or—in other cases—to a latent hyperthyroidism. In order to obtain a true comparison of the basal metabolism of the basic tissues in obese and normal weight persons, the first three factors would have to be eliminated; or estimated and subtracted—a task which cannot be performed with satisfactory accuracy.

The other factors of the caloric equilibrium—the specific dynamic effect of foods and of muscle activity, the amount of muscle activity, and the food intake—do not show uniform changes in obesity; in the majority of cases abnormal values were found, to be sure, in the expected direction, but in a number of cases the values of these factors were just normal, or showed a change in the opposite direction. Even the relation of food intake to muscle activity does not seem to be uniform. These findings must bring up the question: Does the caloric equilibrium have to be disturbed in obesity? Or is it possible that in certain cases or in certain phases of obesity the values of all caloric factors, including their balance, may be entirely normal?

2. Observations on the Nature of Obesity

It is a common observation that the body weight of many normal adult persons remains fairly constant for many years in spite of the fact that both the caloric intake and output varies extensively under everyday conditions. It is also a common observation that periods of

incidental loss or gain of weight in these persons—due to disease, undue strain, or inactivity—are soon followed by periods in which the weight is more or less automatically restored to the previous level. Furthermore we know from clinical and experimental experience that such persons (and healthy normal animals as well) can be easily made to lose or gain weight by artificial means—such as starvation and increased exercise, or overfeeding and limited exercise—but that these alterations from the normal weight will stop and restoration of the previous weight will follow as soon as the subjects are not interfered with in their instinctive eating and exercising habits, if the loss or gain of weight did not exceed certain limits.

In these same respects obese and lean persons show the following behavior:

1. The body weight of obese persons is usually considerably above, and that of lean persons considerably below the normal average. But overweight is evidently neither a necessary nor a pathognomonic characteristic in obesity. *There are obese persons who are not overweight*, and there are *overweight persons who are not obese*. The first group might be called “masked obesity” and comprises persons who maintain a normal or slightly over-normal weight by artificial means, that is, by living on a restricted diet and forced exercise, resisting constantly their natural eating and exercising impulses. These persons in spite of their normal weight, must be classified as masked or larvaeous obesity for the same reason as diabetics who have no glycosuria on a low carbohydrate diet are classified as diabetics. As soon as the voluntary or artificial restriction as to diet and exercise is removed these normal weight obese persons will immediately gain weight, thereby demonstrating the presence of the anomaly. The second group might be referred to as “pseudo-obesity” and comprises overweight persons who are not essentially obese. These persons became overweight because of forced overeating and limited exercise. That they are normal persons is manifested by the fact that as soon as they live again according to their “instinctive” habits they lose their excess weight in a short time. These persons may manifest all the *clinical* symptoms of obesity, but, from the pathologic point of view must be distinguished from essential obesity. To classify such normal persons in the stage of overweight as

obese, would be as incorrect as to classify the polyuria of the beer drinker as diabetes insipidus, or the high temperature caused by a high frequency current as fever.

Similarly we must distinguish between underweight and lean persons. Lean persons are of course usually underweight. But lean persons may keep themselves near to normal body weight on a forced regime of feeding and rest. On the other hand normal persons may be underweight on an artificial regime of low caloric feeding and increased activity.

2. It is a common view that obese persons are characterized by a “tendency to gain weight.” By this is meant that in these persons even occasional overeating or inactivity will result in a gain of weight, necessitating constant attention in order to prevent further fat deposition. *This statement needs an important correction.* All obese persons have gained weight over a more or less extended period of their life. There is, however, a limit to the gain in weight even in extreme cases. Clinical observations show that after a high body weight is reached which is individual and which may be moderately, markedly, or extremely high, a phase is entered in which the high body weight is maintained practically automatically. There is a period in which the tendency to gain weight is very marked—we may call it the *dynamic phase* or period of obesity—and there is a period in which there is no tendency to gain weight, which might be called the *static phase*. It is frequently observed that obese persons who find themselves unable to prevent further gain at say 180 pounds body weight maintain with ease their body weight at 220 pounds. No tendency to gain is present at this time and at this weight. But if the weight of this person is reduced by restricted diet, etc., considerably below 220 pounds, the tendency to gain immediately reappears. It seems then that the tendency to gain weight is not a characteristic of obesity in general, but only of one of its phases, the dynamic phase. The dynamic phase may be of short or long duration and represents the period in which the body weight of the obese persons is below his individual abnormally high level.

Similar considerations are valid as to the tendency to lose weight in leanness. This tendency to lose weight is present only when the body weight of the lean is temporarily above his in-

dividual abnormally low level, such as after a successful attempt to gain weight. In this dynamic stage of leanness consistent efforts have to be made in order to maintain the additional weight, such as by continued forced eating and rest; even then the tendency to lose in this period will finally result in most cases in the restoration of the previous low weight. But as soon as the static phase of leanness is reached no more tendency to lose is observed, and the weight will be maintained automatically without any particular effort.

3. Another common observation is the resistance of the obese to lose weight and the resistance of the lean to gain weight. By this is meant that the response of obese persons to low caloric diets and forced exercise would be different from that of normal persons inasmuch as the loss in weight would be smaller in proportion than the calculated caloric deficit, or that it would be accompanied by subjective symptoms of discomfort much more marked than in the normal person.

As to the objective response there is no doubt that any obese person will lose body *fat* on a low caloric diet exactly according to the caloric deficit, if proper supervision insures the strict observance of the diet. The loss in weight is of course not a true index of the loss in body fat, because the weight includes also the changing water content of the body. The loss of body fat is accompanied in some cases by increased water elimination, in other cases by water retention; thus the scale may show an amazing loss of weight in one case and little or no loss of weight in another on the same low caloric diet, although the actual loss of body fat might have been the same. If the fluctuations of the water equilibrium are determined and calculated, it can be shown that the loss in body fat corresponds in every instance exactly to the calculated caloric deficit.¹¹

Neither is the subjective resistance of obese persons to continued low caloric diets in any way different from that of normal persons. It is true that a number of obese persons find it difficult to follow dietary restrictions; they soon complain of hunger, weakness, dizziness, restlessness, headaches, insomnia, etc. But many obese persons have no difficulties on such a regime. We observe similar differences in response to caloric underfeeding in normal weight persons; some of

them can stand it remarkably well for a long time, others are quite distressed. The peculiar feature of obesity is only that symptoms of caloric underfeeding may appear at a stage when their body fat content is still well above the average normal. Apparently the obese is just as sensitive to reduction in his abnormally high body fat content as the normal is to reduction in his normal body fat content. Similar considerations may be applied to the question of the resistance to gain in weight of the lean person.

These general observations indicate that a delicate and sensitive mechanism regulating the fat content of the body must be working in *normal* persons, that this mechanism is capable of automatically controlling the impulses for caloric intake and the factors of the caloric output, and that the operation of this regulating mechanism is governed by the existing fat content of the body—a mechanism that might be compared to the body heat or water-volume mechanism. In the healthy person of average weight this body fat controlling mechanism automatically tends to maintain a weight which is normal for the person's age, sex, and height. The normal fat content of the body represents the zero point, the normal level, or threshold of the mechanism controlling fat deposition. Factors disturbing fat deposition set the regulatory mechanism to work, resulting in change of appetite or in muscular activity—and possibly other factors concerned with the caloric intake and output—and these changes will restore the normal fat content if not interfered with. This mechanism is probably set at a certain level genetically (hereditary obesity or leanness or normal weight), which may be influenced or changed by hormonal (endocrine obesity or leanness) or nervous (lipodystrophia, e. g., Dercum's disease, etc.) influences.

In *obesity* and *leanness* the level of the fat content regulating mechanism is represented by an abnormal fat content of the body. In obesity the level is abnormally high; in leanness it is abnormally low. The operation of the regulatory mechanism in obesity and leanness is no less efficient than in normal persons; it is adjusted only at a different level. The mechanism tends to maintain the "abnormal" level in obesity and leanness just as rigorously as the normal fat level is maintained in normal persons. Incidental or artificial changes brought to bear on the me-

chanism in obesity and leanness will call forth just as efficient operation of the mechanism as occurs in normal persons, so that it is as difficult to permanently influence the body weight of the lean and obese subject as it is the body weight of the "normal weight" subject.

In this connection it is worth while to compare the body fat content regulation with body temperature regulation. Normally the body temperature is extraordinarily uniform. Violent exercise or extremes of environmental temperature cause transient deviations which are quickly rectified when normal conditions again prevail. In febris continua "the temperature regulating mechanism of the body apparently maintains this higher level as jealously as it maintains the lower level of normal individuals."¹² We shall see later that the analogy between temperature and fat content regulation can be extended further.

While the nervous centers and tracks of temperature regulation have been known for some time, experimental evidences of a central regulating mechanism for metabolic processes were not available until recently. Grafe and Gruenthal¹³ found that injury to certain parts of the hypothalamus in the dog is invariably followed by a marked drop of the basal metabolism. Bernhard and Zondek⁸ noticed that the basal metabolism of certain cases of obesity was markedly lowered after a lumbar puncture and removal of spinal fluid. Direct experimental proofs that the "metabolic center" in the hypothalamus controls other or all single factors of the total caloric intake and output,—such as the specific dynamic effects, etc.—are lacking yet, but that this center has a profound influence on the caloric metabolism as a whole is strongly suggested by P. Smith's findings in rats on the "tuberal syndrome."¹⁴ This investigator proved that injury to the tuber cinereum in the rat is regularly followed by the development of a marked or even extreme obesity. Aschner and others have described cases of "cerebral obesity" in which brain tumor or encephalitis or other brain pathology was found in connection with a rapidly growing obesity. Zondek²⁵ described the so-called hypophyseal-cerebral-peripheral type of obesity. The importance of central nervous system pathology was fully recognized by Bernhard, who makes it the basis of his classification of obesity.

There is also some experimental evidence concerning the controlling of the mobilization and deposition of fat by hormonal-nervous factors. Coope and Chamberlain¹⁶ found that pituitrin causes an accumulation of fat in the liver. Raab¹⁷ noticed that injections of pituitrin are regularly followed by a decrease of blood-fat, which, however, does not occur if the infundibulum or the tuber cinereum is previously destroyed or the spinal cord severed anywhere above the 6th cervical segment. Wertheimer¹⁸ found that the accumulation of fat in the liver observed in phloridzin poisoning does not occur if the spinal cord is severed above the 7th dorsal segment; he also found that insulin inhibits the formation of fat liver in phloridzin poisoning, and pro-

motes the disappearance of fat from an already fatty phloridzin-liver. Rony and Ching¹⁹ have shown recently that the passage of ingested fat from the blood into the tissues is greatly promoted both by insulin and by administration of carbohydrates, and conclude that the fat transport depends on the state of carbohydrate metabolism going on in the tissues, especially in the liver.

This discussion shows that other factors may operate in the body than caloric intake and output which are concerned in the etiology of obesity and leanness and that an imbalance of caloric intake and output is secondary to a more prime cause.

3. *Interpretation of Data Concerning Caloric Equilibrium Based on a Revised Conception of Obesity and Leanness*

It has been pointed out by an analysis of the available data on the caloric equilibrium in obesity that a lack of uniformity exists. Part of this lack of uniformity finds its logical explanation we believe in the conception set forth that the caloric equilibrium in the dynamic phase must be necessarily different from that in the static phase. In the dynamic phase, when the body fat content is below its "abnormally" high level, or when actual fat deposition is taking place, the caloric balance *must be positive*, otherwise no fat deposition would be possible. In the static phase of obesity, when the abnormal high body fat content is reached, and the body weight is maintained at a high level, the caloric intake and output *must be in balance*, otherwise the weight would not be maintained. Therefore examination of the caloric balance may show different results not only in different cases but even in the same case depending on the phase during which the tests were carried out.

The lack of uniformity in the values of the *single* factors concerned in maintaining caloric equilibrium in obesity is also what one would expect. If for some reason a high body fat threshold or level is established in a previously normal weight person, and the body fat controlling mechanism strives to store fat in the tissues, this may be done in different ways. In some cases an increased appetite will appear causing increased food intake, the other factors remaining practically unchanged. Or the food intake is increased and at the same time some or all of the factors concerned in caloric output are reduced. In other cases the food intake may

not be increased, and the amount of urge to muscular activity or "the specific dynamic effect of muscular activity" may be reduced. In still other cases the method used by the body to insure fat deposition may be a relative reduction in basal metabolism or a lowered specific dynamic effect of foods, etc. Finally, in the static stages, all metabolic factors may be at a "normal" or a basic level for the individual concerned.

We have seen that anomalies of these single factors may be occasionally found in normal weight persons. The body fat regulating mechanism evidently prevents excessive fat deposition in these normal persons automatically by vicarious adjustment of some or all of the remaining factors. Thus persons with low basal metabolism are frequently of normal weight or even lean because the deficit in the caloric output is balanced by a reduced food intake; even myxoedemas are usually not obese. On the other hand, in occasional cases of obesity with extremely high basal metabolism the food intake is apparently sufficiently increased not only to cover the excess of the basal metabolism but also to supply calories for storage. Similarly follows the interpretation of the fact that normal or even lean persons were found to exhibit low specific dynamic effect of food, or low muscular activity etc., and that obese persons were found with normal or even high values for these factors.

It may be instructive to cite here again the analogous phenomena observed in the caloric equilibrium in fever. If the heat regulating mechanism is suddenly established at a higher level than normal the method of producing extra heat quickly is by means of muscular action; some involuntary mechanism causes the patient to shiver until he has produced a large number of extra calories. Under ordinary conditions of health these extra calories would be eliminated through the skin, but an additional mechanism prevents this during the chill. There results an excess of heat production over the heat elimination in this period,—chiefly due to the muscular action during the chill—with a consequent storage of heat in the body due to absence of sweating. After the temperature has established itself at its high level the chill ceases; now the basal metabolism is usually increased mainly as a result of the high temperature, according to van't Hoff's law. A high level of body temperature is established, the heat elimination being so adjusted as to equal the production. When the body temperature rises slowly there is no chill or other muscular activity to produce the extra calories necessary to warm the body. The rise of temperature

is then caused chiefly by a failure of normal heat elimination.¹²

The phenomena of dynamic and static stages and the ability of the body to procure calories for storage in *different ways* in obesity have thus striking analogies in the control of body temperature in fever. But while the choice of methods used for controlling body temperature in fever is related to the *rate* in the change of the temperature level, no such simple rule is known to exist in regard to the choice of the different methods available for fat storage in obesity. Just why fat deposition is procured chiefly by increased food intake in some cases, and chiefly by reduced muscle activity, etc. in other cases, is not yet clear. But it should be clearly understood that the observed changes of the metabolic factors in the dynamic stage of obesity are not causes of but merely methods for the resulting fat deposition, in the same way as the chill is not a cause of the fever but only a means for extra heat production. The cause of fever is something altogether different. It is important to realize this since it will enable us to reduce to its due value the heretofore exaggerated importance of the study of the caloric equilibrium in obesity and leanness.

This criticism should also be applied to the interpretation of the results obtained by us on the "sugar tolerance" and "fat tolerance" of obese persons.²⁰ The sugar tolerance of 70 obese persons was examined. Each received 120 grams of glucose in 500 cc. water in the morning on an empty stomach. The blood sugar was determined before and at hourly intervals after the glucose meal for three hours; simultaneously samples of urine were collected and tested for sugar. It was found that 44 of the 70 showed a "normal" sugar tolerance, 16 exhibited an abnormally "low," prediabetic, sugar tolerance, and the remaining 10 showed a definitely "high" sugar tolerance. The "fat tolerance" of 18 obese and 8 normal weight healthy persons was tested by studying the effect on the blood plasma lipids of the administration of a pint of 20 per cent. cream. The total fatty acid content was increased in the normal subjects and a fairly uniform curve resulted, a maximum content being reached from three to five hours after the meal of cream. Seven of the obese subjects gave a "normal" response, five showed a "high" fat tolerance, the fatty acid content of the blood de-

creasing after the meal, and six showed a "low" fat tolerance, the increase of the fatty acids in the blood being higher than the highest in the normal cases. The subjects showing high fat tolerance had high sugar tolerance also, and those showing low fat tolerance had low sugar tolerance also. According to these results obesity is not infrequently associated with an abnormally fast removal from the blood of ingested sugar and fat. This phenomenon may also be one of the numerous factors the body fat regulating mechanism employs to promote fat deposition. But that it is not a causal factor is indicated by the fact that in many obese cases the rate of transfer of sugar and fat from the blood into the tissues was found normal and in others even abnormally slow.

A similar lack of uniformity characterizes the results of studies on the energy derived from the various basic foodstuffs and on the respiratory quotient in obese and lean subjects as compared with normal weight persons. Wang and Strouse²¹ found that the majority of obese subjects derive less energy from ingested fat than normal or thin individuals which they believed to be the reason for excessive fat storage. Hagedorn, Holton and Johansen²² found that obese subjects have lower post-absorptive respiratory quotients after two days of a diet consisting chiefly of carbohydrates than normals, which they believed was due to excessive conversion of carbohydrates into fat. However, 18 per cent. of the obese cases of the former and 41 per cent. of the latter either reacted as normal subjects or in an opposite direction. Two of the obese cases of the latter authors, for instance, had higher respiratory quotients than any of the examined normal subjects. Evidently increased transformation of carbohydrates into fat or decreased utilization of ingested fat by the obese may be one of the methods the "body fat regulating mechanism" uses in increasing body fat. However, such data, although very valuable, do not answer the question of what causes the increase in transformation of carbohydrates into fat, etc., and hence do not bear directly on the prime etiologic factors concerned in obesity.

4. *The Question of Exogenous or Endogenous Origin of Obesity*

Another view concerning the problem of obesity and leanness which has been argued pro and con is expressed in the clinical classification of obesity into exogenous and endogenous groups. Ever since Noorden introduced this classification it has been the source of much confusion. No agreement has been reached as to the characteristic criteria of each group, and therefore it has proved of little value in practical diagnosis. In

the recent literature there is a tendency to omit this classification altogether, and the physiological problem as to the fundamental origin of obesity,—whether it is exogenous or endogenous—still exists. Lauter, for instance, attributes obesity chiefly to exogenous factors; and Newburgh and Johnston¹¹ call endogenous obesity a "misconception." Bernhardt, on the other hand, considers obesity chiefly endogenous in origin.

It seems to us that the conception of obesity and leanness as faulty adjustments of the body fat regulating mechanism tends to eliminate this confusion. We pointed out the fundamental difference between artificial fatness or pseudo-obesity and essential obesity. Artificial fatness with its purely exogenous origin is easily produced in experiments and in live stock farming, provided genetically fat animals are used. We believe that artificial influences *promoting* marked fat deposition are seldom encountered in human obesity clinically. Persons who became fat after they forced themselves to overeat and to live a sedentary life because of a fear from a suspected tuberculosis, and continue on such forced regime indefinitely, belong to this group; fatness developed after a paralysis of the legs, etc., belongs to a certain extent to this category. These cases in pure forms do not show excessive grades of fat deposition, however. In the overwhelming majority of our obese patients artificial factors if present tend to *inhibit* fat deposition rather than promote it. These patients in order not to be obese report that they have been limiting food intake and have been exercising. But the spontaneous impulse or urge to overindulgence and inactivity is usually stronger than all artificial influences. These spontaneous impulses are always endogenous whether they are associated with some manifest endocrine or nervous system pathology or not.

Of course, the endogenous disturbance of the body fat regulating mechanism in obesity can be influenced to a certain extent by exogenous factors. The situation in this respect seems to be similar to that in diabetes. The underlying disturbance of the carbohydrate metabolism in diabetes is unquestionably endogenous but we know that the degree of the disturbance depends to some extent on certain exogenous factors, such as food intake. Thus it has been observed that the sugar tolerance of diabetics may be considerably improved after a continued regime of die-

tary restriction and again aggravated after continued overindulgence in carbohydrates. It is generally assumed that overindulgence in carbohydrates constitutes undue strain on the already deficient insulin production causing additional exhaustion of the islets. This additional exhaustion can be relieved by continued low carbohydrate diet. Such observations demonstrate how an exogenous factor may actually influence an underlying endogenous disturbance.

Similar phenomena can be observed in obesity, when attempts are made to reduce weight. Some obese persons after living on moderately low caloric diet for a prolonged time with considerable loss of weight can remain around this so attained lower level indefinitely without effort. (At this stage in such patients who are still overweight, a further attempt to reduce the weight is usually promptly followed by appearance of tendency to gain.) Either a new lower level of the fat regulating mechanism was established; or this lower level may correspond to the basic level of the fat regulating mechanism of such a patient which basic level has been previously aggravated by overindulgence, and then restored after prolonged "underfeeding" to its basic level. This basic level cannot be further reduced by exogenous influence.

That artificial influences *alone* do not produce a *lasting* change in the fat content regulating mechanism is sufficiently proved by the fact that lean persons return sooner or later to their previous weight when "spontaneous" conditions or response to "normal" urges are resumed, even after years of artificial feeding and rest.

We find then that artificial fatness, which is purely exogenous in origin, is rarely encountered in the clinic. We believe most cases of human obesity are basically cases of essential or endogenous obesity and that the underlying disturbance of the body fat content regulating mechanism may be modified to a certain extent by exogenous factors.

SUMMARY

1. The basal metabolic rate is not an appropriate measure of the basal metabolism in obesity. The use of the "basal metabolic ratio" is suggested. The ratio is almost invariably high in obesity, the average increase being plus 30% per 100 lb. overweight; the increase, however,

varies extremely in individual cases. The "basal metabolic ratio" is low in leanness.

2. The other factors of the caloric equilibrium,—such as food intake, specific dynamic effect of foods, amount and specific dynamic effect of muscle activity—do not show uniform alterations in obesity. Neither is the balance between caloric intake and output always disturbed.

3. These facts and certain clinical observations necessitate a revision of our conception of obesity. The chief points of this new conception are: In normal persons the body fat content is automatically maintained by a regulatory mechanism which is adjusted to a threshold represented by the normal fat content of the tissues. In obesity and leanness this regulatory mechanism operates with normal efficiency, only it is adjusted to an abnormally high fat threshold in obesity, and to an abnormally low fat threshold in leanness.—Obesity is not synonymous with excess weight: obesity may be present without excess fat content, and vice versa.—It is necessary to distinguish between the "dynamic" stage and the "static" stage of obesity. In the dynamic stage one or several factors of the caloric equilibrium are of abnormal value, and the caloric balance is necessarily disturbed. In the static stage all caloric factors may be of normal value, and the caloric intake and output are balanced.—Anomalies of caloric intake or output in obesity or leanness have no basic etiologic importance; they are merely means used by the disturbed body fat regulatory mechanism to insure establishment of an "abnormal level." Accordingly the study of the caloric metabolism although of value will not solve the question of the basic causes of obesity.—Human obesity is basically endogenous but the underlying disturbance of the fat content regulating mechanism may be aggravated or improved to a certain extent by exogenous factors.

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COMPENSATION FOR INJURIES OF THE EYE*

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The question of compensation is one which arises more and more frequently to the physician and surgeon of any type during the last few years. While workmen's compensation does not yet apply to practically the whole population here, as it does in some parts of Europe, still there are few injured persons who, if they do not come under the law, do not have disability insurance and who do not produce a pocket full of papers for the doctor to fill out. It is then that his position changes from the normal one of healer to that of referee between an interested claimant and an equally interested employer or insurance company. In this position he cannot accept without question the patient's statement as to the history of his injury, his symptoms, or the resulting visual disability, unless the evidence bears this out. Sometimes the actual facts, to which he may be called upon to testify in court, are difficult to arrive at.

The most common offender is the one who wishes his time of disability extended long after it should be, especially if he is claiming partial temporary disability for some minor injury. In his case all that is necessary is a strict adherence to facts, although this will mean every now and then losing a good patient and his family.

Then there is the patient who complains of symptoms of irritation of the eyes which prevent work long after all objective evidence of the in-

jury has disappeared. Here a nervous element is very often present; the patient is not wilfully deceiving, but once his attention has been called to his eyes, notices and magnifies slight symptoms of fatigue or eye-strain which were never noticed before. This is often due to a refractive error which was present before, but was not great enough to necessitate the wearing of glasses. Although the accident did not cause the refractive error, the quickest way to get such a case back to work may be to provide him with proper glasses. In most cases we must make it plain to the patient that there is no longer any evidence of disease, that a report to this effect will be made, and that disability will not be paid afterwards.

Worst of all is the real malingerer who deliberately misrepresents his disability.

After an eye injury such a person has peculiar advantages, since all of our tests of vision are based on his statements of what he sees. An encounter with a representative of this type may prove a battle of wits in which his native cunning will make it seem that our years of medical training were passed in the kindergarten.

Before I go into some of our methods for dealing with such cases, it may be best to mention the main points of an examination of the eye as it affects compensation cases. The patient's history of his case must be recorded for what it may prove to be worth. External examination of the eyes and lids should be made in good light, usually with the binocular magnifying glasses, and the presence or absence of wounds or scars noted, especially as to whether or not they could have been caused in the manner stated. It is specially important to distinguish old scars of the cornea which must have been present before the injury from wounds, abrasions, or fresh scars which could have been caused at the time stated. The presence of previous disease does not excuse the employer, under the Illinois law, from paying disability due to an injury which caused further damage to the diseased eye, but this does not mean that a patient with poor vision from a birth infection can collect for this if he gets a cinder in the eye later. In other words, the evidence of injury must be sufficient to account for the disability claimed. The question of the freshness of such evidence is often not easy to decide,

*Read by invitation before the Chicago Claim Society.
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and here a relatively new instrument, the slit-lamp corneal microscope, gives information which may be of the greatest value. This instrument throws a fine beam of light through the transparent parts of the eye, so that with the microscope we may exactly locate the level of any lesion, determine whether an injury has penetrated the cornea or not, and the presence or absence of cells around an opacity of the cornea which if present would indicate a relatively fresh lesion. With this instrument we are able to see the fine deposit of iron oxide which collects in every eye that contains a piece of steel. Thus even if the steel has absorbed or if the x-ray picture leaves us in doubt as to whether it is in the eye or just outside the eye, we can find reliable evidence as to where it has been with the slit-lamp.

After every injury which involves the remotest possibility of any foreign material being in the eye, x-rays should be made. This will show the presence of most metals and some kinds of glass. The pictures should be taken by one of several special methods which will localize the foreign body accurately. For if a piece of metal has penetrated the eye and gone beyond it, it will seldom be necessary to remove it, as it will do no more harm if left alone. If it is shown to be in the eye, and is magnetic, a prompt effort should be made to remove it. If it is a fragment of steel or iron our giant magnets will usually remove it, but the removal of pieces of glass, copper or lead is very difficult and often involves more danger to the eye than leaving them alone. Small fragments of this kind may remain in eyes for years with retention of good vision.

Besides these external and x-ray examinations the inside of the eye must be examined carefully with the ophthalmoscope, and careful notes made of any evidences of injury found. An eye which looks perfectly normal externally may show hemorrhages or tears in its inner coats which will account for great loss of vision or even blindness. In such an examination it is usually necessary to dilate the pupil.

In all cases, the amount of vision of both eyes should be carefully recorded. This is a matter in which medical examiners may be blamed for causing much confusion among claim adjusters. For there unfortunately exist a number of methods of recording vision, the results

of which may look entirely different and mean exactly the same thing, or vice versa. The results are usually expressed as fractions and it would be easy if these fractions really meant fractions of vision. But they usually do not. The standard way of recording vision is by the use of a test chart, the letters of which are read by the normal eye at various distances. The numerator of the fraction is the distance at which the test is made, usually 20, for 20 feet, while the denominator is the distance at which the letter can be distinguished by the normal eye. Thus vision of 20/20 means that the eye reads at 20 feet what it should read at 20 feet; 20/200 means that it reads at 20 feet what it should read at 200 feet, and so on. It does not mean that 20/200 or 1/10 of normal vision is present. Some examiners, however, translate this into the fraction of vision present, expressed in decimals, when 1. is normal vision, or use fractions expressed in meters, in which case 6/6 is normal vision. The 20/20 method should be the standard, and most state laws provide a corresponding visual loss for each grade of vision below 20/20, vision of 20/200 or below this being considered industrial blindness. Vision should be taken after correcting any refractive error present with test glasses, since a refractive error such as nearsightedness or astigmatism can seldom be caused by injury, and there can be no reason for indemnifying a case for poor vision which was present before the injury. His loss of vision will therefore represent the difference between his best vision with glasses and normal vision. Another piece of valuable information is afforded by a careful test for glasses, since where there is a marked difference between the refraction of the two eyes, the one with the greatest refractive error often has had defective vision from birth, which cannot be improved by glasses. I have seen many patients who had received some trifling injury and who then discovered for the first time a marked deficiency in vision. If there is no evidence of sufficient damage to account for such visual loss and this eye has a greater refractive error than its fellow, we may assume with almost absolute certainty that the defect was present before and not caused by the injury. The real difficulty comes when some evidence of damage is present, such as a small cor-

neal scar, which does not seem great enough to account for the loss claimed. Here the evidence of a marked difference in refraction is important enough to be used in court as an argument for a previous defect. Many companies, especially the railroads, protect themselves against the possibility of unjust claims of this kind by recording the vision of every employee in the train service, so that they have record of any previous defects. Other companies, such as some of the packing houses, are also doing this, and where physical examinations are made, it would always pay to take and record the vision of the employee. Many injustices undoubtedly occur under the law, and one of the most needless of these, it seems to me, is the ruling in some states that the visual loss must be computed from the vision without glasses. This was true in Nebraska, and I have seen many cases indemnified for visual defects which were due chiefly to refractive errors and only in small part to an injury.

Besides the central vision, which is all that is referred to in the previously described tests, there are two other functions of the eye which must also be considered, because either may be damaged without corresponding loss of central vision. These are the capability of normal movements which enable the eye to work with its fellow, and the possession of a field of vision. The latter means that besides what we see when fixing on an object, we see objects indistinctly all about us and a loss of part of this field, as may occur after certain injuries, may be a serious handicap in work. Practically such field losses, though occurring not uncommonly in disease, are rarely the result of accidents without serious damage to central vision. Disturbances of the movements of the eye, however, may be very important. Paralysis of the muscles which move the eye may occur by direct injury to the muscles, or by injury to their connections in the brain as after a skull fracture. Such paralyzes cause double vision which often absolutely incapacitates a man for work unless the offending eye is covered. I have known such cases to be indemnified for the loss of an eye although the eye possessed normal vision, because work was impossible unless it was covered. The question of operating to correct such muscular defects

comes up. Since we cannot absolutely promise relief of the double vision in many cases, I believe it would be impossible to force an employee to accept operation. It can be stated, however, that operation may be done without risk, so that some courts might rule that the employee should submit to operation. I know of no case of just this kind, but the Illinois courts did rule in a case of cataract causing blindness that the employee was not entitled to compensation till operation had been performed. A railroad case seen this year with double vision following a fall on the head accepted operation voluntarily and obtained complete relief of symptoms.

Because of the complex factors involved in compensating eye injuries, a committee of the American Medical Association in 1925 proposed a scheme for evaluating them; the percentage of central vision, field and motility being multiplied to give the total visual efficiency and the loss in efficiency being the difference between this and 100 percent. This was accepted as a fair basis for compensation and an attempt was made in many places to turn in medical reports on the basis of its schedules. My own experience with it was that it was often too complicated for the Labor Commissioner to appreciate, although it is a very fair scheme. I believe the most practical method is to estimate loss of central vision according to a standard scale such as was proposed by the committee, and bring in motility and loss of field as additional defects only in the rare cases where such losses occur, when the method of computing additional compensation for them proposed by the committee will prove a useful one.

There are a few situations peculiar to eye injuries which are perhaps not perfectly understood. One of these occurs when cataract follows an injury. Cataract is, of course, an opacity of the crystalline lens, which occurs usually after any wound of its capsule or in old age, spontaneously. The opaque lens can be removed by an operation and good vision is usually obtained, often normal vision. This is only obtained, however, by the use of a strong lens, strong enough to prevent the use of the two eyes together. Because of this, the Illinois compensation law holds that even where operation has been performed, the patient "must be deemed to have suffered

a total loss of one eye." This seems unjust, since without any glass a great deal of benefit is obtained from the additional visual field, and most important of all, if the patient should lose the other eye, he would then resume use of his injured eye with the glass and would be capable of most kinds of work. Under the present law, however, there is no inducement to Insurance Companies or Employers to pay for cataract operations which will not reduce the amount of compensation paid. This does not alter the fact that such operations should be performed at the time when operation is safest, although this must usually be at patient's own expense. In the case mentioned above where one eye was lost and the other eye had a cataract, operation was presumably paid for by the company, as it would save the patient from becoming totally disabled, and obviate, in fact, paying compensation for the loss of one eye if the result were good.

Another condition which is a cause of some misunderstanding between physician and adjuster is detachment of the retina. This is a loosening of the most important membrane of the eye, the retina, which is the sensitive film with which we see, from its attachments. It is often caused by injury, and any blow on the eye, or even a severe fall not involving the eye, may cause it. The cause of complication is that this detachment may not occur at once, but some time after the injury, when all obvious signs of injury have cleared up. In fact, it may occur, as in a case I saw, several years later and still be due, in all probability, to the injury. It usually occurs sooner, however, within a few months and a number of things help us in determining whether or not a given case of detachment was due to injury. The injury should be a sharp blow on the eye, which need not perforate the eyeball. The retina should show at the time a swelling or hemorrhages and hence should be examined carefully with the ophthalmoscope after every such injury. If such evidence is present, we must lay our patient up for at least a week to lessen the danger of detachment, and after any severe blow on the eye this is undoubtedly the only safe course to pursue. It is in these late detachments that real injustice may be done an injured man who has already settled for an apparently minor injury. Really such cases

should only be settled with a reservation in case such trouble should develop later, but I believe this is impossible to do practically, and that any court would reopen a case which should later lose an eye in this way.

After any corneal ulcer or corneal erosion a certain amount of scar is left, which interferes considerably with vision. This clears gradually, and the clearing process continues for months and even years. There is always an anxiety to settle up compensation cases, often on the part of the adjusters themselves, which leads to over-compensation in these cases, since a visual loss estimated a month after an ulcer may be reduced by half or three-fourths after a year. The clearing that occurs after a year is usually slight, but where the loss from a corneal scar is great it is certainly worth while to postpone settling a case for at least that length of time, provided the patient is at work in the meantime, as he usually should be.

I would like to return as a last point to the problem of detecting malingerers who claim ocular damage.

The malingerer seldom claims to be completely blind in both eyes, as this is too inconvenient and involves a scheme of deception too complicated to be carried out for long. He often claims complete or almost complete blindness in one eye. Examination of the eye, if it shows no evidence of injury or disease of the vital parts of the eye, will usually convince us that we are dealing with a malingerer. We can prove this by placing the edge of a prism before the pupil of the good eye which is fixed on a light. This causes the patient to see two images with the one eye but if he is malingering he will deny seeing more than one, in the belief that one image is seen with the other eye. If he claims to see only one light we have definite proof that he is malingering. We must then prove that the other eye sees, and if possible, how much it sees. If the pupil contracts when a light is flashed upon it, it is almost certain that it sees. The patient is seated before the test chart and told to look at the letters with both eyes open, without closing either eye. A testing frame is then placed over both eyes, containing before the eye claimed to be defective a plain glass and before the good eye a strong lens which will blur the

vision considerably, and he is asked to read. Being unable to tell which eye he is using, he will often read the line corresponding to normal vision, and can then be easily shown that he was doing so with the eye claimed to be blind. Another method is to place two cylindrical lens which neutralize each other before the good eye and while the patient is reading to turn one lens slightly, which will blur the vision. If the patient continues to read he is doing so with the so-called blind eye. This method is successful with most patients who are trying deception for the first time. It may be defeated, however, by the patient closing the defective eye during the test, when the true conditions of the test are suddenly realized. When once this trick is learned, and it may be learned before we have obtained any information by it, we have a real problem, especially if not complete, but only partial blindness is being claimed. We may try to catch the patient by several methods which he may not know about. Thus if he claims to see only 20/200 we may bring him to 10 feet instead of 20, when if he still sees only the 20/200 letter he is malingering. We may take his visual field with small colored objects, and since he does not understand how small his field should be for the vision claimed, he may admit having a fairly normal field which would be impossible with the visual defect claimed. What we really want to know, however, is just how much he sees.

In examining a case this year I thought of a trick which I afterwards found had been used in much the same way some time ago, and was then apparently forgotten about, and which has been very useful. This patient, a Mexican laborer, was brought in by a white man with obviously very defective eyes, who acted as his interpreter. The white man whom I thought was probably an experienced malingerer, had evidently taught him the usual tricks, as by none of them would he admit seeing more than shadows. I thought of an instrument, used to exercise the muscles, called Worth's amblyoscope with which the patient looks through tubes which may be crossed so that one is unable to tell which image belongs to which eye. I placed the picture of a bird on the side of the defective eye, one of a cage before the other eye, and crossed the tubes so that the bird seemed to be seen by

the good eye. The man at once answered that he saw the bird, so that we knew at once that he could see an object at least as small as the bird with the eye claimed to be almost blind. By figuring the length of the tube and size of the bird, we could say that his vision was 20/100. It was probably much better but we had no standard objects smaller than this. Since then I have had made a set of test types for the instrument, with which vision of 20/20 can be recorded. With these types I was recently able to prove vision of 20/30 for a man who claimed that the eye was blind. He was interesting, as he had already been passed by the local railroad surgeon as having lost the sight of one eye, and only came before me when he attempted to prove loss of vision in the other eye. There was absolutely nothing abnormal to be seen inside the so-called blind eye, the only peculiarity about it being a wide dilatation of the pupil. The other eye had an irritation of the lids which was subsequently found to be brought on by his putting irritating materials such as lime and sand in the eye. We had his belongings searched when he was asleep and found the atropine with which he was keeping the right pupil dilated, and his discomfiture was completed by the test with the amblyoscope.

This work of showing up malingerers calls for a certain primitive cunning and success in it affords a type of unholy pleasure quite different from that which the good physician feels as he goes on his usual errands of mercy.

58 E. Washington St.

CIRCUMCISION

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Having used this method many times and finding it very expedient and efficient, I pass it on to those who care to use it.

Procedure: Before the surgeon begins the operation, he threads a fine curved cutting needle on a ten-inch strand of No. 00 plain catgut; he also cuts a one-inch slit in the vaseline gauze (see Fig. 1). Having now finished the cutting part of the operation, he places a three-in-one stitch, as indicated in Fig. 2, which when tied brings the flaps together (see Fig. 3). A stitch may be placed on the dorsal side. The long end

of the vaseline gauze is passed through the slit near the shorter end—the loop passed over the head of the penis and slight traction made (see Fig. 4) which effectively controls oozing, as it



FIG. 1 VASELINE GAUZE $5\frac{1}{2} \times 5\frac{7}{8}$ DOUBLE
NOTE POSITION OF SLIT



FIG. 2



FIG. 3

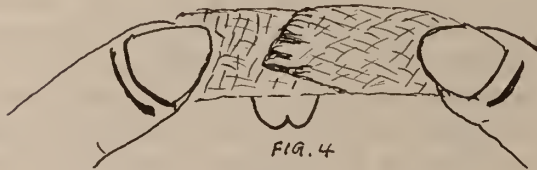


FIG. 4

Figs. 1-4. Explanation in text.

acts as a tourniquet. The shorter end is now folded under to where it meets base of longer flap; the longer end is folded over the shorter end and over the top; there is now a six-layer gauze all around.

It will not slip. Hemostasis is perfect. The wound is kept free from urine.

The vaseline gauze is left in position four days, when it is easily slipped off.

OBSERVATION OF THE USE OF SODIUM-ISO-AMYL-ETHYL BARBI- TURATE UNDER THE TRADE NAME OF SODIUM AMYTAL AS AN ANESTHETIC

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Several reports have appeared in print concerning the use of this drug, but as yet we have seen nothing which follows the technique we employ and find very satisfactory. Therefore, this abbreviated report is submitted with the idea that it may have some interest even though the

cases are insufficient in number to allow conclusions of definite finality.

Thus far it has been used in 25 major cases and tried in three obstetric and a few minor cases. Twenty-three of these major cases were in the department of general surgery under Dr. Leslie B. Joslyn, and two in the nose and throat department under Dr. Irwin G. Spiesman. For relatively normal obstetric cases, we cannot, ourselves, feel it is indicated, because in the small doses producing analgesia, while the patient may have no memory of any pain, the difficulties for the attendant are too great for us to feel favorably inclined toward its general use in obstetrics.

The 25 cases are fairly representative of general surgery as it comes to the ordinary office. The youngest patient was 12 years old and the oldest 73 years old. They included six cholecystectomies—only one of which was that alone. One of these had an appendectomy and herniotomy, another a repair of ventral hernia, another an appendectomy and excision of abscessed ovary. Among the cases were several perineal operations for rectocele and cystocele, also trachelorrhaphy with other pelvic work. There was one prostatectomy, three sub-total thyroidectomies, one ruptured pyloric ulcer, one pyloric ulcer with erosion to the serosa and one with a large stone in the common bile duct with a mass of adhesions in a patient who eight years before had had a cholecystectomy. One was a case of undescended testis. One was a radical maxillary sinus case and one a nasal case with polypi on turbinates and septum as well as the usual polypi arising from the ethmoid region. This case required complete exenteration of the ethmoid cells of both sides.

Although the number of cases is far from large it can be seen they are varied and that many were extensive and time consuming which allows at least a tentative evaluation of the usefulness of this drug. Any review of the work done by others, either laboratory or clinical, is purposely omitted for there is here no idea of presenting a complete and authoritative report.

It is very probable that any one reading this report is familiar with the hypodermis tablets of morphine, hyoscine and cactoid under the abbreviation of H. M. C. from the Abbott laboratories. They will be called H. M. C. I containing one-fourth grain of morphine and II con-

taining one-half the quantity of the various ingredients. In all except the first case preliminary administration hypodermically of this narcotic was employed. On the first case which was a radical antrum operation no preliminary drug was given and $22\frac{1}{2}$ grains of the sodium amytal was injected very slowly with careful record of the blood pressure every minute or two. This case was very unsatisfactory although deep narcosis was apparently obtained after three grains had been injected. As the operation progressed the patient moved his head sufficiently to hamper seriously the work of the surgeon and a small amount of ether was necessarily added. Subsequently the following technique was employed.

Two hours before the operation is scheduled an H. M. C. I is given subcutaneously unless the patient be very young or low in weight. Then one-half hour before the scheduled time an H. M. C. II is administered unless the patient is very drowsy, in which case it is omitted. At the scheduled time of operation or about 10 minutes before, the sodium amytal is started intravenously, the dose given depending entirely on several factors, viz: the size and age of the patient, the fall in blood pressure noted, and the depth of narcosis from the H. M. C. administered. The smallest dose given was four grains and the largest 15 grains, the average being $7\frac{1}{2}$ grains. During the operation more is given if required. In only two cases was any other anesthetic used, one being the case of cholecystectomy, appendectomy and excision of abscessed ovary. In this case after the removal of gall bladder and closure and upon making the second incision lower down to reach the pelvis the patient began to move and a small amount of ethylene was added. No doubt three or four grains of sodium amytal at this time would also have been effective. In the other case that of herniotomy the patient was scarcely affected by the H. M. C. administration and was still conscious after five grains of sodium amytal had been given. This case was given a low percentage of ethylene throughout the operation.

We believe from our limited experience that it is of great importance to inject slowly and to constantly watch the blood pressure. After giving this drug to several patients and obtaining only a moderate fall in blood pressure, we began to think its importance over emphasized, when we had full occasion to realize the erroneousness

of any such conclusion. A patient of 52 years weighing normally 164 pounds, had a blood pressure of 164/92 just before sodium amytal was administered. This case had had the usual preliminary H. M. C. I and II as described. As soon as the sodium amytal was administered the blood pressure began to fall, reaching the low level of 58/40 after eight grains had been given over a period of 13 minutes. The injection was stopped and an ampoule containing $7\frac{1}{2}$ grains of caffeine sodio-benzoate with three-eighths grain of ephedrine sulphate was administered hypodermically and the patient was taken to the operating room. At the instant of making the skin incision 24 minutes later the blood pressure was 74/44. As operation progressed the patient became rigid. In just 10 minutes the blood pressure has risen to 114/74 at which time more sodium amytal was given. By the time seven grains more were administered the blood pressure had gone up to 124/82 instead of falling as it had done during the administration of the first eight grains. The operation, which was relatively severe was finished without anesthetic difficulty and with excellent relaxation. This case had a stone in the common duct with a mass of adhesions from a previous cholecystectomy. The recovery was rapid and this patient had no nausea and very little pain, receiving an H. M. C. II every six hours for 24 hours. This case illustrates not only that occasionally a very severe fall in blood pressure may take place which requires stopping the administration of that amount of sodium amytal sufficient for the operation, but that more may be given while the operation is in progress without a second marked diminution in pressure. This we have observed in several instances, only once there being any rapid fall in pressure during the second administration coincident with the operation. This case accidentally had several grains administered very rapidly. Her fall in blood pressure must have been almost to the vanishing point for the pulse became imperceptible and respiration ceased. Adrenalin and artificial respiration rapidly restored the patient to good condition and the operation which was a perineal repair, proceeded without interruption. Such experiences make us feel that slow injection and careful observation of blood pressure are imperative.

All patients given sodium amytal become very

restless upon regaining consciousness, and we find that the further administration of H. M. C. is advisable. We usually give an H. M. C. II as soon as the restlessness becomes evident, and repeat it every six to eight hours for the first 24 hours as indicated. Here a note of warning needs to be sounded, viz: to watch for any case which may show signs of insufficient oxygenation. Any cyanosis should be observed and the patient placed in a position to overcome obstruction of respiration. Stimulation with caffeine and ephedrine and intravenous glucose may be advisable. We consider that in all cases cyanosis should not be permitted. Close observation is absolutely necessary for these patients. They can not be left to the general care of a routine floor nurse unless she has time to give to these patients and some knowledge of their behavior. Without further detail our impressions are as follows:

1. Sodium amytal may be used for most operations without other anesthetic provided a preliminary narcosis is obtained from morphine and hyoscine. Our technique is to give an H. M. C. I two hours before the time scheduled for operating and an H. M. C. II one-half hour before operating unless the patient has become drowsy.

2. The amount of Sodium amytal given must depend upon the degree of narcosis when it is started and the amount required to induce an apparent deep sleep. If the patient is drowsy at the beginning and soundly asleep after two or three grains are given, the total administration at that time should be $7\frac{1}{2}$ grains or less. If more is needed give it on the table. If blood pressure falls markedly, stop while the patient is acting well and administer caffeine sodio-benzoate with ephedrine and if necessary adrenalin as well. Expect a marked fall in hypertensive cases and in elderly people. Watch for a fall in all cases.

3. If relaxation is not sufficient after the operation is under way given more sodium amytal. The fall in blood pressure will probably not be as great as originally, but the necessity for administering it slowly still remains.

4. Always have a syringe of caffeine sodio-benzoate with ephedrine ready for instant use as well as one of adrenalin hydrochloride. This point was included under impression number one, but deserves separate mention.

5. Post-operative restlessness is the rule, coming on several hours after the drug has been administered. For this H. M. C. II should be given and repeated if necessary, but care must be exercised that the patient has sufficient oxygen, and no obstruction to respiration. Anoxemia with acidosis is possible. Do not leave these patients in the care of any one not familiar with or at least not instructed as to the possible course of events.

6. While this drug may be used in nearly any operation, its particular field of usefulness is in operations about the head and neck. It removes the dread of taking an anesthetic, which is very real to many patients and eliminates to a very large degree the subsequent nausea. We believe this drug may prove a very valuable addition to the list of general anesthetics.

NOTE: Since the writing of this article we have used this anesthetic in as many more cases as here reported. This further experience has not modified any conclusions, except, that a very small amount of ethylene is required to supplement this anesthetic when it is not expedient to obtain rather profound preliminary narcosis with morphine and hyoscine, or to use more of the sodium amytal on the operating table. The percentage of ethylene should never be high.

BUTTERMILK AS AN INFANT FOOD

A process for preparing buttermilk for infant feeding is fully described by A. B. Marfan, Paris. He measures and compares its nutritive values, describes the character of the digestion and the nutritive changes in a child fed with buttermilk, gives directions as to its use in the feeding of healthy as well as of weak and hypotherptic infants, and warns against its use in case of constipation, acute diarrhea and the toxic phase of choleric form diarrhea.

Society Proceedings

COOK COUNTY

CHICAGO SOCIETY OF INDUSTRIAL MEDICINE AND SURGERY

Meeting, March 4, 1931, 8:15 P. M.

- Carbon Monoxide Poisoning (Illustrated by Motion Pictures) W. D. McNally
 Discussion: Frederick W. Slobe and Fred M. Miller
 Reduction of Fractures and Dislocations Under Local Anesthesia. (Illustrated by Motion Pictures and Lantern Slides) C. R. G. Forrester
 Discussion: W. R. Cubbins, James Callahan and E. B. Fowler.

CHICAGO ROENTGEN SOCIETY

Meeting, March 11, 1931

- Relation of Roentgenology to Other Branches of Medicine Morris Fishbein
 The Relation of Colitis to Polyposis.....
Dr. J. A. Bargaen, Rochester, Minn.
 The Earliest Signs of Colonic Malignancy.....
Dr. H. M. Weber, Rochester, Minn.
 Open Discussion.
 Edward L. Jenkinson, President.
 Geo. L. Landau, Secretary.

CHICAGO MEDICAL SOCIETY

Meeting, March 18, 1931

- Symposium on Diseases of the Heart*.....
By Loyola University School of Medicine
 The Heart as a Factor in 5,000 Coroner's Cases....
Thomas P. Foley
 The Heart and the Diaphragm.....I. Trace
 Auricular Fibrillation; Etiology, Mechanism, Diagnosis and Treatment. (Lantern Slides)..I. F. Volini

CHICAGO MEDICAL SOCIETY

*Joint Meeting with the Illinois Society for Mental Hygiene**Meeting, March 25, 1931*

- The Acute Medical and Surgical Service of a State HospitalGeorge A. Wiltrakis
 Psychiatric Social Service.....Mrs. Louis McNamara
 Hemoclastic Crises in Mental Patients..Daniel Haffron
 The Use of Sodium Amytal as a Sedative in the PsychosesAbraham Ettelson
 Colloidal States in the Blood in Catatonia.....
Dr. F. LeBlanc, Elgin
 Dr. Leah Lurie, State Psychopathic Institute, Elgin
 Discussion: Lewis J. Pollock, Charles F. Read,
 Sidney D. Wilgus and Francis J. Gerty.

Marriages

BERT M. BREWSTER, Fieldon, Ill., to Mrs. Beatrice Johnson in St. Louis, January 16.

FREDERICK B. MOOREHEAD to Miss Marjorie Maxwell, both of Chicago, February 1.

JOSEPH SHANKS to Miss Eleanor A. Berg, both of Chicago, February 11.

LORAIN E. TEGTMEIER to Miss Elvira Nold, both of Millstadt, Ill., February 11.

Personals

Dr. Ora L. Pelton has retired after fifty-eight years in the active practice of medicine in and near Elgin.

Dr. Albert H. Andrews, among others, addressed the Chicago Laryngological and Otologi-

cal Society, March 2, on "Indication for Operation in Acute Mastoiditis."

Dr. Ernest Sachs, St. Louis, addressed the Adams County Medical Society, February 9, on "Diagnosis and Present-Day Treatment of Brain Tumors."

Dr. Nelson M. Percy, Chicago, addressed the Will-Grundy Counties Medical Society, Joliet, March 4, on goiter. Dr. James H. Hutton spoke, March 11, on "Endocrine Control of Obesity."

Drs. Andrew C. Ivy and William R. Cubbins, Chicago, addressed the Sangamon County Medical Society, Springfield, March 5, on the cause of gallstones, and "Fractures—Conservative and Operative Treatment."

Drs. Sandor Horwitz and William A. Hinckle were the speakers at the meeting of the Peoria City Medical Society, February 17, on "Medicine as Practiced by the Early Hebrews and Jews during the Bible and Talmudic Times" and "Anal Rectal Abscess and Fistula." Dr. Noble Sproat Heaney, Chicago, spoke March 3 on endometriosis.

Karl F. Meyer, Ph. D., director of the George Williams Hooper Foundation for Medical Research, University of California, will deliver the seventh Ludvig Hektoen Lecture of the Billings Foundation before the Institute of Medicine of Chicago in the City Club, April 24. Dr. Meyer will speak on "The Animal Kingdom—A Reservoir of Disease."

Dr. William Thomas McLean, Maroa, was the guest of honor at the meeting of the Decatur Medical Society, February 17, in celebration of his completion of fifty years in the practice of medicine; his son, Dr. Franklin C. McLean, director of clinics and professor of medicine, University of Chicago, was the principal speaker and reviewed medical progress during the past fifty years.

Dr. Max Thorek addressed the Tri-State Medical Society at Shreveport, Louisiana, March 20, on "Possibilities in the Reconstruction of the Human Form."

News Notes

—The Chicago Gynecological Society presented the following program: 1. Syphilis of the Fetus and Newly Born Infant, by Fred L. Adair,

M. D. 2. Surgical Anatomy and Episiotomy with Modeling Clay, A Moving Picture Demonstration, by Joseph B. DeLee, M. D.. 3. Radical Episiotomy; an analysis of six hundred consecutive Normal Primiparous Labors Terminated by Timely Episiotomy and Forceps Extraction, by William H. Rubovits, M. D.

—Dr. C. L. Birch discussed Hemophilia, Platelet Study and New Treatment, before the Medical Research Club of the University of Illinois, March 18. Excretion Into and the Effect of Drugs on the Lungs, was discussed by Messrs. H. G. Becker and D. S. Jaffray.

—The Chicago Council of Medical Women held their regular monthly meeting at the Medical and Dental Arts Club, April 3, 1931, with the following program: Emotional Instability in Children, Mary A. M. Lee, M. D.; Discussion, Evelina W. Ehrmann, M. D. Mental Hygiene in Students at the University of Chicago, Margaret W. Gerard, M. D.; Discussion, Mary E. Poague, M. D.

—The Bacon Lectures are given each year at the College of Medicine, University of Illinois. The lecturer this year is Professor Herbert A. Evans of the University of California. On March 31 the subject was "The Hormones of the Hypophysis." On April 1, "The Relation of the Hypophysis to the Reproductive System."

—The Chicago Society of Allergy will present the following program at the Medical and Dental Arts Club, April 20, 8 p. m.: 1. A New Method of Non-Specific Treatment of Allergic Disease, preliminary Report, S. M. Feinberg, S. L. Osborne, and M. L. Afremow. 2. A Study of Reactions of Mixtures of Reagin and Atopen, Francis Foran and M. R. Lichtenstein. 3. Case Report: Eczema Due to the Pollen of Rough Marsh Elder, B. Z. Rappaport. Discussion open to all. All interested urged to attend.

—House Bill 301 proposes to make it unlawful to sell any preparation containing wood alcohol, methanol or methyl alcohol, unless the container, in addition to being labeled as now required by law, contains the following statement in letters not less than one-eighth inch in height: "Warning: Wood alcohol (methanol or methyl alcohol) is extremely poisonous and may cause blindness or death if it enters the body through the mouth, by skin absorption or by inhalation of vapors."

—A department to be known as the Samuel Deutsch Convalescent Human Serum Center has been established at Michael Reese Hospital with funds provided by the children of Mr. Deutsch. It will supply special human serum to the Chicago district for the treatment of various infectious or contagious diseases, and especially for the treatment of infantile paralysis. It is said to be the first serum center to be established in the state. The comparative figure for the number of cases of infantile paralysis in Illinois were 410 in 1930 against 88 in 1929. The serums are to be obtained only from patients who have recovered from various diseases and whose serum has been shown to prevent disease in patients who have been exposed to similar infection. Co-operating with the new serum center, the Illinois State Board of Health will distribute convalescent serum. Drs. Sidney O. Levinson and Leo Zimmerman are assisting in this work.

Deaths

CHARLES B. BATEMAN, Centralia, Ill.; Keokuk Medical College, College of Physicians and Surgeons, 1904; aged 53; died, February 8, of cerebral hemorrhage.

WILLIAM ALEXANDER BRITTIN, Virden, Ill.; Marion-Sims College of Medicine, St. Louis, 1895; member of the Illinois State Medical Society; mayor of Virdin and president of the school board the past four years; aged 64; died, February 11, in St. John's Hospital, Springfield, following gangrene and amputation of his leg.

FREDERICK J. FIELDING, Chicago; Keokuk (Iowa) Medical College, 1896; Fellow, A. M. A.; on the staffs of the Lutheran Memorial Hospital and the Belmont Hospital; aged 64; died, March 9, of cerebral hemorrhage, as the result of a fall while trying to extricate a stalled automobile.

WALTER CLARK HOVEY, Nokomis, Ill.; Medical Department of Washington University, St. Louis, 1897; aged 57; died, March 1.

JOHN KEAN, Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1878; aged 98; died, Dec. 1, 1930, in Jacksonville, Fla., of senility.

GEORGE MACKAY LAING, Cicero, Ill.; L. R. C. S., Ireland, 1889; aged 61; died, February 9, of wounds received when shot by bandits.

JOHN F. RUNNELS, Chicago; Louisville (Ky.) Medical College, 1879; aged 81; died, March 6, of mitral insufficiency and arteriosclerosis.

ERI PERRY RICE, Chicago; Rush Medical College, Chicago, 1889; member of the Illinois State Medical Society; aged 71; died, February 21, of pneumonia.

TREATMENT OF NONTUBERCULOSUS SUPPURATIVE PNEUMONITIS, ABSCESS AND BRONCHIECTASIS

John Alexander, Ann Arbor, Mich., and William W. Buckingham, Kansas City, Mo. (*Journal A. M. A.*, Nov. 15, 1930), assert that suppurative pneumonitis not rarely complicates operations, pneumonia and infections of the mouth and sinuses. In the early stages of the disease, medical treatment is best and often cures. If it fails after a reasonable trial, surgery frequently offers an excellent chance for cure, provided operation is not unduly delayed. The most useful medical and surgical methods of treatment are: sanatorium regimen; frequent postural drainage; elimination of mouth and sinus infection; neosarsphenamine given intravenously; bronchoscopic removal of foreign bodies and secretions; artificial pneumothorax; temporary or permanent interruption of one phrenic nerve; extrapleural pneumolysis; extrapleural thoracoplasty; drainage of an abscess; lobectomy. Selection of the best therapeutic procedure for each of the many different types of suppurative pneumonitis must be highly individualized. The simplest appropriate measure should, of course, be chosen first and as soon as it is seen to be inadequate the next more radical one used. Alexander and Buckingham describe what they believe to be a logical succession of the nonsurgical and surgical measures that they have found of value for various types of suppurative pneumonitis.

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(Continued from Page 42)

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Pike	O. H. Berry, New Canton	Frank N. Wells, Pittsfield.
Pope	No Society.	
Pulaski	John F. Hargan, Mound City	B. V. Rife, Mounds.
Randolph	C. O. Boynton, Sparta	W. F. Weir, Sparta.
Richland	H. D. Fahrenbacher, Olney	F. L. Barthelme, Olney.
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Winnebago	J. H. Maloney, Rockford	F. L. Heinemeyer, Rockford.
Woodford	A. E. McReynolds, El Paso	S. M. Burdon, Low Point.

PHYSIOLOGIC DISTURBANCES INCIDENT TO OBSTRUCTIVE JAUNDICE

A. C. Ivy, Chicago (*Journal A. M. A.*, Oct. 11, 1930), asserts that in obstructive jaundice there exist a number of failing physiologic mechanisms and it is not known which one is primarily concerned. The fundamental nature of the reactions involved in pro-

ducing the physiologic disturbances is not completely understood at present. The literature indicates that a carbohydrate diet with milk and cod liver oil and calcium administration are worth while therapeutic procedures in this condition. The fact that the problem is being actively attacked by several groups of investigators augurs well for the future of the understanding of physiologic disturbances in jaundice.

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CONTENTS

Editorials (See Extended Table for Contents for Titles) . . 325

ORIGINAL ARTICLES

Thyroidectomy For Thyrotoxicosis. *J. M. Mora, M.D., and E. J. Greene, M. D., Chicago* 338

Hyperplastic Sinus Disease Re Retrobulbar Neuritis. *Samuel G. Higgins, M. D., Milwaukee, Wis.* 340

Hyperesthetic Rhinitis and Asthma. *Wm. L. Beecher, M. D., Chicago* 343

Ocular Muscle Imbalance. *Harry M. Thometz, M. D., Chicago* 344

Private Sanatoria for Mental Patients in Illinois. *John M. Grimes, M. D., Chicago* 346

Effect of Intrapartum Care on the Mother. *J. P. Greenhill, M. D., Chicago* 349

Pulmonary Tuberculosis and Constitutional Anomalies. *John Ritter, M. D., Miami, Fla.* 352

Impotence as Seen by the Urologist. *C. Otis Ritch, M. D., Chicago* 357

Post-Operative Wound Infections. Etiological Factors. *Guy S. Van Alstyne, M. D., Chicago* 359

Preservation of the Parathyroids in Goiter Surgery. *George M. Curtis, M. D., Chicago* 361

Wassermann Reaction in Asthma. *Rudolph Hecht, M. D., Chicago* 366

(Continued on Page 10)

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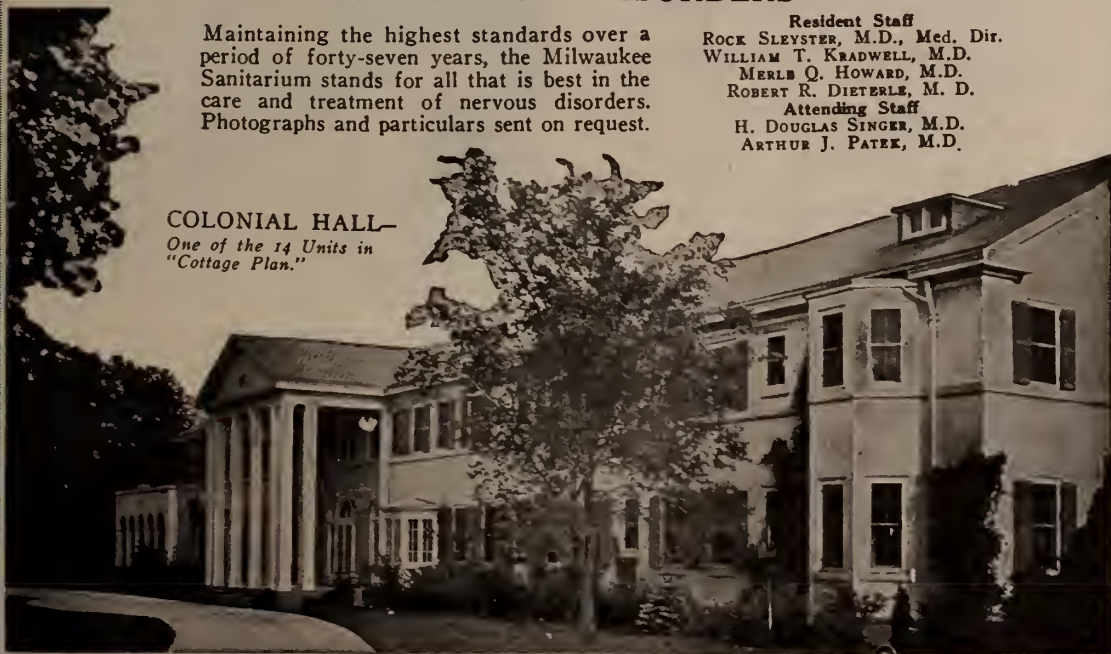
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Editorials

A NEW BLIGHT IS AFFECTING EDUCATION AND INDUSTRIES—ITS NAME IS STANDARDIZATION

Five or six years ago that learned man and great humanitarian, President Eliot of Harvard University said aptly: "A New Blight Is Affecting Education and Industries in the United States. Its name is Standardization. It is obvious that standardization has become a dangerous adversary of progress in both education and industry. . . . Fix standards in labor, in study in modes of family life, or of community life are down right enemies of progress for the body, mind and soul of man."

The trend of the times makes economic factor in medical practice the destructive element in scientific progress and the inevitable force that will so aid in the encroachment of paternalism upon democracy's rights that the day when medicine is practiced no longer by physicians but is controlled and managed and politically managed by the laity will be the day when the doom of individual rights and community independence is sounded by the installation of the worst bureaucracy the world has ever known and under whose advanced guards the law ridden United States is already knuckling. Standardization the handmaid of bureaucracy has United States by the throat. Truly it has been said that "America is forced by law to do, and prohibited by law from doing more things than had been prohibited or required in autocratic Europe before the war. New and interfering laws multiply in the United States as rapidly as the staggering tax levies that are required to pay for the administration of meddling statutes that nobody wants and that nobody needs except members of the bureaucracy rapidly destroying personal freedom and making the United States the worst of autocracies with the situation paralleling pre-revolution France.

Over-centralization of power at Washington

with its usurping of state rights, community rights, individual rights, affects the medical profession most seriously at those loop holes discovered where the profession comes in contact with the world at large in joint administration with laymen; in legislation; and in economic life of the individual doctor and contact with the public.

ORGANIZED MEDICINE IN ILLINOIS HAS GIVEN A WONDERFUL SERVICE

1. It is conceded by many medical men throughout the country who occupy high official positions, that Illinois is at least five years in the lead in medical alertness and accomplishment in safeguarding the vital interests of the profession.

2. The medical profession in Illinois has almost one hundred per cent. single standard for entrance in the practice of medicine.

3. Illinois is one of the few states where the physicians are not humiliated by having to sit on licensing board with non-medical men.

4. During a period of twenty-five years not one piece of legislation inimical to the profession, has been enacted in Illinois, in spite of the fact that at each session of the legislature, from one hundred to one hundred and fifty bills affecting the status of the profession have been introduced.

5. The educational committee work of the Illinois State Medical Society is commended by everyone in official medical practice over the United States as far ahead of that of any other medical society in accuracy, alertness and efficiency.

6. Illinois is one of the three states in the union that never had a co-operative Sheppard-Towner law.

7. Due in a large measure to the alertness of the medical profession in Illinois we have no compulsory health insurance in this country.

8. Parent-Teachers associations in this state have been induced to have pre-school examinations done at the physician's office rather than at clinics.

These accomplishments, with many others, have been brought about by the untiring efforts of men you have elected to office in the past.

MATERNITY BILL TO BE OFFERED AT THE NEXT CONGRESS

SENATOR JONES SAYS PLAN APPROVED IN CONFERENCE WILL BE PASSED EARLY
IN SESSION

According to the *United States Daily*, March 21, 1931, we quote:

The Jones maternity bill to provide for Federal aid in the dissemination of information and service in the promotion of health and welfare of mothers and infants, which failed of enactment in the closing hours of the last Congress, will be reintroduced immediately after the reconvening of the next Congress, and its early passage is anticipated, Senator Jones (Rep.), of Washington, stated orally March 20.

The bill was passed by the Senate during the last session, sent to the House and amended there, and a compromise agreement reached in conference. The compromise agreement was before the Senate at adjournment.

NO CHANGE PLANNED

The bill will be introduced, Senator Jones said, in the same form as accepted in conference, in order to expedite its passage.

As passed by the Senate the scope of the measure was confined exclusively to welfare work in maternity. The House broadened its scope, however, to include Federal aid in general rural health work. This amendment was accepted by the Senate conferees during the last session, and Senator Jones expressed the belief that it would meet with little opposition from the Senate as a whole.

FUNDS AUTHORIZED

The bill would authorize the appropriation of \$1,000,000 annually to be distributed among the various States proportionally for health work, such funds to be matched by equal amounts of State funds.

It is designed to continue the work begun under the Sheppard-Towner Act, which by statutory limitation expired in 1929.

Senator Jones predicted early action on the bill in the next session, pointing out that in a long session it is recognized as useless to filibuster. There will, of course, be "a lot of talk" against it, he said, but little opposition is anticipated when a vote is reached.

APOLOGIES TO DR. OLIN WEST

In the article in the April JOURNAL on "The Job of Editing a Medical Journal," pages 285-291, occurred a classical example of the mischance which dogs the editor in spite of utmost care. In this article, the last paragraph beginning on page 290 and extending to the top of page 291, appeared to be part of the editor's article, followed by a very brief discussion by Dr. Olin West.

This paragraph was really part of Dr. West's discussion and is reproduced as follows:

I recently heard of an incident in which a physician had written what was, in his opinion, a very splendid scientific paper, and sent it to the editor of a certain journal. The editor sent it back with a letter saying that while it contained some very excellent material, it was much too long, much too involved, and would not be read in its present form, and asked the writer to cut it down. He received in answer an insulting letter to the effect that the writer knew what he wanted to say and how to say it. Of course, he did not get very far with that. The editor told him, however, that he was going to take the liberty of having the paper revised and would then submit it to him. He turned it over to a manuscript editor who reduced it by about half and it was then returned to the physician without any comment or any marks of identification. A telegram came back saying that this was the best paper on the subject the gentleman had ever read, adding, "You can throw mine in the waste basket." It was his own paper, properly edited, with some of his idiosyncrasies eliminated. The paper was published in its revised form and created a good deal of favorable comment.

THE ATTEMPTED SOCIALIZATION OF THE PRACTICE OF OBSTETRICS.

THE CHILD HAS BECOME THE BEST GRAFT.

The *Woman Patriot*, under date of January 15, 1931, in an article. "Enemies of Children and Freedom," gives some valuable data on the attempted communistic grant of power over American homes and children. We quote:

"*The Child Has Become the Best Graft.*" It is the children of America (up to 18 years) that both the revolutionary communist and the job-hunting social worker desire to nationalize,

standardize and control, through one central Department or Bureau of the Federal Government.

"*The Children's Bureau* of our Labor Department, every one of whose drives for more power has been personally led by the communist, Mrs. Florence Kelley (nee Wischnewstzky), has sought over American mothers, babies and youth, exactly the same powers, up to exactly the same age, as assumed by the Soviet Government in Russia, and as demanded by the Workers Communist Party of America. (See *Daily Worker*, Communist, Dec. 5, 1924; *Workers Monthly*, Communist, January, 1925; and *Congressional Record*, July 8, 1926, for detailed documentary proof.)

"Therefore, both because it demands and constantly works for an arbitrary, despotic, communistic "full grant of power" over American homes and children, notwithstanding repeated decisions of the Supreme Court that neither the Federal Government nor any States government has power to "standardize children," and also *because it serves no useful or legitimate purpose whatever, the Children's Bureau should be abolished.*

"*All legitimate facts and statistics which the Federal Government may or should gather and publish regarding the education, enumeration, births, deaths, diseases, health and labor of children, are better and more completely gathered and published by the Federal Bureau of Education, the Federal Division of Vital Statistics in the Census Bureau, the United States Public Health Service, and the Federal Bureau of Labor Statistics.*

"*Four Federal Bureaus* investigating and reporting all legitimate facts and statistics regarding American children are enough! There is no need of a special *Fifth* Federal Bureau, claiming and attempting to usurp, 'the entire field of child welfare and child care' as the Federal 'Children's Bureau' does.

"When the *real mothers* of this country learn the whole truth about this *business* organized by Feminists and Socialists to substitute politicians for physicians in the 'care of maternity and infancy,' they will arise in their might and sweep the country clean of *political* accoucheurs, and insist, with Dr. Charles E. Humiston of Chicago, Ill., that 'the best is none too good' for American mothers and babies, and refuse to

tolerate longer the attempted *socialization* of the *practice of obstetrics* in a country where even the nationalization of railroads, coal mines and waterpower is not dared by the same political leaders who tamely submit, against their own better judgment, to Federal bills and proposed Constitutional amendments to place the lives and health, labor and education of all mothers, children and youth under control of one radical lay bureaucrat at Washington, who is neither doctor, lawyer, mother nor nurse!

ROLL OF HONOR

Senators who kept the faith and voted against the Jones Bill, January 10, 1931:

Republicans in Roman; Democrats in Italic; Farmer-Labor in Small Caps.*

Senator Hiram Bingham of Connecticut.

Senator William E. Borah of Idaho.

Senator *Edwin S. Brossard* of Louisiana.

Senator Frederick H. Hillett of Massachusetts.

Senator *Carter Glass* of Virginia.

Senator *William H. King* of Utah.

Senator Jesse H. Metcalf of Rhode Island.

Senator George H. Moses of New Hampshire.

Senator HENDRIK SHIPSTEAD of Minnesota.*

Senator Daniel F. Steck of Iowa.

PAIRED AGAINST JONES BILL

Senator *Harry B. Hawes* of Missouri.

Senator Lawrence C. Phipps of Colorado.

Senator *Claude A. Swanson* of Virginia.

Senator David A. Reed of Pennsylvania.

Senator *Millard E. Tydings* of Maryland.

Senator *David I. Walsh* of Massachusetts.

"Senator Reed Smoot of Utah, who was absent and without a pair on the day the final vote was taken, declared afterwards: "If I had been present, I would have voted against it." Senator Smoot had also voted before against it.

"All the above Senators equally "kept the faith." But particular attention is due Senator Shipstead of Minnesota, who, in 1927 voted for the extension and repeal in the belief '*that the agreement was made in good faith and will be kept.*' Senator Shipstead believes that a gentleman's agreement, particularly when made part of statute, should be kept—and keep it himself whether or not others in the agreement repudiate and evade it."

ALUMNI MEETING

The Alumni of the College of Medicine of the University of Illinois, formerly the Chicago College of Physician and Surgeons, will hold their annual luncheon at the Broadview Hotel, East St. Louis, Ill., at 12:15 noon, May 6, 1931, at the time of the meeting of the Illinois State Medical Society. Covers, one dollar. The local committee chairman is Dr. H. M. Voris, Collinsville and Pennsylvania Avenue, East St. Louis, Ill.

Further information can be obtained by addressing Dr. Edward Louis Heintz, Secretary of the University Hospital, N. W. corner Ogden Avenue, Congress and Lincoln Streets, Chicago, Illinois.

POST-GRADUATE COURSE IN NOSE AND THROAT SURGERY

The Post-Graduate Course of Ear, Nose and Throat Surgery at the University of Bordeaux, France, will commence July 27, 1931.

The course is given in the English language. The class is limited to twelve physicians and is offered by Prof. George Portmann.

For information apply to Dr. Leon Felderman, 413 Mitten Building, Philadelphia, Penna.

FACTORS WHICH HAVE BROUGHT ABOUT A FEELING OF UNREST IN THE MEDICAL PROFESSION

(a) Lessening of morbidity due to hygienic education and practice.

(b) Diminution of disease due to specific treatments for its specific manifestations.

(c) The increasing knowledge of specifics for standardized diseases has brought into play a vast possibility for self medication that the public has availed itself of with much avidity.

(d) Overcrowding of medical profession with its consequent debauching through economic pressure of the poorly qualified or ethically equipped membership.

(e) State pre-emption of professional privilege and other economic factors affecting necessary revenue.

(f) Increasing disposition to paternalism:

1. Federal interference.
2. State interference.
3. County or township interference.
4. Municipal interference.

- (g) Increasing tendency to bureaucracy:
 1. Installation of Portfolio of Medical Supervision.
 2. Standardization of profession.
 3. Destruction of individualism.
- (h) Over-specialization of profession:
 1. Increased cost of medical service.
 2. Abolition of "family doctor."
- (i) Centralization of political headquarters of medical control:
 1. Washington, D. C.
 2. Various state capitals.
 3. County seats, etc.
- (j) Medical legislation fiat in practice of medicine:
 1. Harrison law.
 2. Volstead act.
 3. Smith-Towner bill.
 4. Sheppard maternity bill.
 5. Venereal disease control legislation.
- (k) Unqualified admissions to license to practice:
 1. Christian Science.
 2. Chiropractics, Osteopaths, etc.
 3. Over-trained nurses.

Witness desire of some cults, the Red Cross and other lay organizations to take over so-called "minor surgery," recommended by red-tape business organizations.

- (l) Attempted financial segregation:
 1. Tendency of moneyed foundations to despotism in professional mandates.
 2. Tendency to make use of free clinics and sociological measures as a playground for wealthy faddists at expense of poor and diseased citizenry.

(l) False premonitions as to self preservation, i. e., primitive desire to get without giving—"something for nothing."

Demanding adjustment are relations of ethical medicine with hospitals, dispensaries, universities practicing medicine, corporations practicing medicine, pay and part pay clinics, medical charities, endowed foundations, social service organizations, ill-advised but well meaning philanthropists, and other entities of unscientific, falsely premised effort, of which some exhibit tendencies to dominate situations vitally

affecting the medical profession and bearing with menace upon the public health and upon civilization itself.

DR. FRANK BILLINGS IS RIGHT IN HIS
PARTIAL DIAGNOSIS OF WHAT IS
WRONG WITH MODERN MEDICAL
PRACTICE WHEN HE
DECRIES THE PROFESSIONAL
TENDENCY
TOWARDS MECHANISTICS

"I am sorry," so Dr. Billings¹ expressed himself candidly "that modern medicine has forgotten how to examine patients physically. This is a mechanistic age. Talk about the cost of medical care. If every man who comes in contact with patients and (I mean every practitioner) was resourceful, qualified, industrious and painstaking, he would make a diagnosis with the things that heaven has given him, without any instrumental aid beyond the simple things that every man can control, in 85 per cent. of all the cases."

This poignant comment from Dr. Billings rings as loudly now in the ears of thinking physicians as it did to those who heard him speak at the 1930 A. M. A. past-Presidents' dinner on the topic "What has most influenced my life."

Dr. Billings phrases in a nutshell whole pages of argument. We have all of us become more or less button-pushers. We have become more dependent upon machines than upon men. In some avenues of life this dependency possibly works no harm. In others, especially the intimate professions such as medicine, the danger is incalculable.

This angle of life with modern improvements is receiving great consideration everywhere from eminent thinkers, especially from medical servants.

Machinery and equipment can never replace mentality, science and skill. Individual skill, individual knowledge and individual judgment in individual cases are beyond the capacity and the jurisdiction of the most perfect machine invented. Yet standardization and standardized

1. From talks at Past Presidents' Dinner given by the Michigan State Medical Society, to Officers, Trustees and Delegates of the American Medical Association, Detroit. June 23, 1930.

mass production is becoming so powerful a fetish with the American people as to extend a malign influence into those regions and areas of the mental, moral and physical world where standardization is a useless tool. Nowhere is this more evident than in medical practice. Routine employment of mechanical therapy is even more dangerous than hap-hazard guess work. For frequently this reliance upon mechanical devices and routine stultifies both innate powers of discernment and decision. *Mechanics should supplement, not supplant individual ability.*

Diagnosis first. Then if necessary confirm the resultant decision by mechanistics. Auscultation and percussion should not be displaced by chest x-rays. Medical practice is an art and an individual science, first last and always. Reliance on mechanical appliances if persisted in too strongly will cause to atrophy both training and endowment of scientific skill. Personal accomplishment must be maintained. *What man wants to substitute mechanical locomotion for the use of his own feet?*

In this machine age not only mechanical appliances but transference of labor tend to promote the mechanization of medical practice. It has come about that the younger generation finds detail, decision, and actual performance altogether to irksome and tedious. That part of actual work, of responsibility and necessary tedium that cannot devolve upon a labor-saving machine, the average young practitioner is very willing, aye even eager, to pass over into the realm of "the specialist." For the dignity of personal performance is a land of the lost Atalantis in this very involved age of machinery so oiled and arranged that if the "laborer is worthy of his hire" he has already decided that he is too worthwhile to tire.

Where among younger men do you find a man who is "specializing in surgery" willing to quote that great and famous forbear in this art who said of himself, "I am a physician who practices surgery?" As to the tendency to be over dependent upon the specialist, let attention turn again to Dr. Billings,² who on another occasion said with truthful emphasis:

"The value of the application of group practice is limited. I believe that this is true. Ostensibly the group is formed for the avowed purpose of providing all patients with an accurate diagnosis and efficient treatment. This is made possible through the services of clinical and laboratory specialists and available equipment to obtain a precise knowledge of the physical and functional condition of the patient and to afford efficient general and special treatment, including hospital care, if that is deemed necessary. First, let us inquire how many patients of an average community require the application of these precise methods of diagnosis to arrive at a true understanding of the real condition, and how many of these patients require hospital care. Based on long experience in consultation and in general hospital and private practice, it is my opinion that a correct anatomic and functional diagnosis can be made in from 80 to 85 per cent. of all the patients of an average community by a qualified, industrious, painstaking general practitioner by the sole application of the trained mind, the special sense, the hands and an always available simple laboratory equipment. Likewise, approximately 80 per cent. of the patients will receive efficient management and treatment as ambulatory or house patients. Of course, it is advantageous that every hospital, with the possible exception of some very small or special institutions, should have the necessary laboratories, equipment and trained technicians to make these precise examinations and to afford adequate treatment of the few patients who really require their use.

"The truth is, the splendid knowledge which modern medicine has made available in the diagnosis and treatment of disease is misapplied frequently, with unfortunate derogatory effect on the public and the tendency to demoralize some members of the medical profession. This method of practice and the false impression gained by the public through private and public group medical and surgical service with the usually attendant high cost, are tantamount to commercialism. The public is slowly but surely becoming aware of these conditions in medical practice. Evidence of this point of view of the public is expressed by lay people in cities and in the country. Frequently the best families of the city inquire whom they may secure as a family physician. In this connection we must remember that the splendid character and accomplishments of the United States government are due in no small measure to the character-forming factor, the family home. The modern tendency in the cities, especially among the foreign-born population, is to seek tenement habitation, which tends to minimize the value of family life and to disregard the responsibilities of citizenship. This tends to engender the worst forms of socialism, and disregard of individual and community responsibility in the observance of the laws of sanitation, and also to promote disease and poverty. The future safety, prosperity and health of the people and the

2. Nu Sigma Nu Bulletin, April, 1929: Presidential address "Significant Landmarks in the Practice of Medicine of Fifty Years." Delivered at the twenty-fourth convention of Nu Sigma Nu, December, 1928.

maintenance of all the benefits which this republic affords demand the preservation of the character-forming family home.

"As a factor in this necessary principle of community welfare, the family physician and his domiciliary visits are essential. It is recognized that the general practitioner, both in the city and in the country, lacks sufficient hospital facilities in the care of his patients. This lack is evident in some of the rural districts of practically all the states of the Union. Some feasible constructive program should be adopted which will afford justice to the taxpayers and to the members of the medical profession, and which will provide better hospital and diagnostic facilities where they are needed. We must, however, keep in mind the fact that a majority of patients do not require the application of unusual and refined methods of diagnosis and also that a majority do not require hospital care."

What applied to the old time family physician must apply to the new. There was nothing mechanistic about the old time general practitioner unless it was his emergency ability to make a kitchen table and a jig-saw do the work of the modern costly and efficient equipment. Every day was an emergency in the days of the old time practitioner. In those days they were MEN of medicine rather than medicine's "man." Scientific minds rather than machines of science took the patient in hand and kept him a good citizen.

As an adjunct to personal performance in medical science the perfected mechanical apparatus now available for the medical profession is as necessary as the addition of motor bus and airplane to the railroad and steamship of the transportation world. But no machine ever invented can make up to a man for the transportation possibilities of shank's mare. And, figuratively speaking, it is this loss, insidiously stealing in upon the younger generation in bulk and the older generation in some specific instances against which the protest rises.

Dr. Billings is right. It is natural for man to choose the easier way. The average man is a creature as full of indolence as of original sin and his basic tendency is to get along easefully as he may. Since this natural desire for ease is the foundation stone of civilization and of progress the lapse is excusable—but only when it tends to improve and not to retard community well being. Accessorily speaking, mechanics in medicine are to be approved; elementally, no.

MEDICINE HAS ALWAYS BEEN A LAP AHEAD IN COMMUNITY SERVICE

WHAT SEEMS NEW TO BIG BUSINESS HAS LONG BEEN AN OFTOLD TALE TO MEDICAL MEN

"HYGIEA'S" COMMENT PERTINENT FOR DISSEMINATION TO LAITY OF WELL-KNOWN ECONOMIC FACTS

Medicine has always been so far ahead of business in point of generosity in civic welfare and personal and professional charity at its own expense, that nothing big business can do in the way of philanthropy evokes from medicine much more than a grunt.

Of course, to big business in the main, profit-sharing or cost-cutting is the rarest of novelties. Medicine as a science and as a community unit is perfectly willing that big business shall enjoy to the fullest this new toy and new avenue for the dissemination of energy, authority and cash.

Medicine may be pardoned, however, for realizing that where civic welfare is concerned it is ahead of big business by several laps. Medicine is more than justified in emitting a large and competent roar when big business, actuated by the best of motives but a big off balance by the usual zest of the game with its new toy, attempts to trot out a few more toys at the expense of medicine. An inherency of ethical scientific medicine is that it is "more blessed to give than to receive." You can't "teach an old dog new tricks." Medicine knows all the tricks of charity at its own expense, and is in a position to teach rather than to learn from big business in this regard.

Under the caption "Current Trends in Medical Practice," the May, 1931, issue of "Hygiea" prints a neat compilation of facts about medical economics that it will be most educational to have both big business and general public digest at leisure.

That "Hygiea" is to be congratulated upon the publication of this article may be realized from the following excerpts:

CURRENT TRENDS IN MEDICAL PRACTICE

"Within the last fifty years scientific medicine has made greater advances than in the fifty centuries previously. It has freed mankind from the fear of disease. It has advanced the expectation of life at birth from 33 years, a rate still prevailing among savages, to 55 years for civilized man. For most of the infectious diseases it provides specific methods of prevention and cure. To persons who formerly would

have died inevitably in a short time from diabetes it offers insulin; to those who would have died promptly from pernicious anemia it offers liver extracts; to the sufferer from the incurable Addison's disease, it provides a new extract from the cortex of the adrenal gland. Even those with the mysterious invasion of the brain by new growths and tumors can take advantage of the marvels of modern surgery. New studies have been made on the care of the mentally defective. What other profession can produce so enviable a record!

"It is not surprising that an enlightened public, aware of these facts, should demand of the medical profession some scheme of organization to provide in increasing measure the best type of medical service for all the people at a price that they can afford to pay. The public has seen motor cars reduced in price to meet the purse of almost any one capable of making a living without reducing profits to manufacturers. The vastly developed mail order houses and chain stores, through group buying and selling, have been able to lower the prices of various commodities. Hence it is argued that similar organization in the field of medicine will enable the physician to lower the prices of medical services greatly and thus to bring them within the reach of any worker.

"For centuries tradition in medicine has demanded that the physician give freely of his services to those unable to pay. For centuries physicians have rendered such services and have depended on their incomes from those able to pay to give them a reasonable return on their investment. Few of the public realize the extent of that investment. The modern physician has put in at least two years in a university, four years in a medical school, a year or two years as an intern in a hospital and perhaps a year or two as an assistant before he begins to earn a living. His education has cost him approximately \$1,200 a year and does not take into account the money that he might have earned in some other occupation, the interest on the investment, and the equipment of his office when beginning practice. It is safe to say that there is an outlay of from \$12,000 to \$20,000 before the physician begins to earn. If this sum were invested for him at 20 years of age he might be financially independent at the age of 50—but how few physicians really are! The investigations indicate an average annual income for doctors of from \$3,000 to \$4,000. It is impossible to separate economics from the problem of medical care.

"Hospital development has been one of the most remarkable phenomena of the current century. In order to conserve the efforts of physicians and to distribute them more widely and in order to apply to patients all the advances of modern medicine, hospitals have increased steadily. In 1909 there were 4,339 reasonably good hospitals in this country. In 1930 there were 6,719, an increase of 54 per cent. In the same time the bed capacity rose from 421,065 to 953,860, an increase of 127 per cent. At least two-thirds of all physicians licensed to practice in the United States now have connection with these institutions. Of these 98,491 physicians who do much of their work in the

hospitals, about 45,000 are specialists. So greatly has diet come to be significant in the care of the sick that the number of dietitians has increased enormously. It may be estimated that the number of people caring for the sick today includes not only the 150,000 physicians but also some 1,850,000 others, such as pharmacists, nurses, technicians, orderlies, dietitians, cooks, maids and ambulance drivers.

"The great expansion in the nature of medical practice has made it seem possible to many social workers and philanthropists that still greater organization would do much to lower the price of medical care. They urge, indeed, that the doctors be still further specialized, sitting all day in one spot, the hospital, wherein the patients pass in a steady stream before them much as the Ford chassis receives the tender ministrations of the nut and axle specialists in Mr. Ford's mammoth manufactory.

"Unfortunately doctors have been inclined to leave the direction of medical institutions too greatly to lay control. The business directors argue that the public gives the doctor a hospital as a place in which to work and that it is none of his business how the place is run and who provides the finances. Nothing could be more fallacious. The doctors make the hospital. Without them it is merely four walls and a lot of medical apparatus. Its merits cannot surpass their merits. The medical staff is the hospital. Who picks a hospital because it has a fine operating room rather than a competent surgeon?

"Practically every plan yet developed for changing the nature of medical practice involves standardization of doctors and standardization of patients. The success of the practitioner in the past has depended on the ability of the individual physician to realize the needs of the individual patient and to satisfy them.

"Dr. Williard C. Rappleye, dean of Columbia University College of Physicians and Surgeons in New York, expressed the opinion of every great leader in medicine today when he said: 'Any plan, whether developed from within the profession or imposed upon it from without, that lessens the responsibility of the trained physician in the care and treatment of patients or denies him the rewards of individual effort and superior ability will, in the long run, be detrimental to the public welfare.' In the United States today hundreds of experiments in changing the nature of medical practice are under way. The development of the group seemed logical as soon as medicine began to be specialized. The committee on the cost of medical care of the American Medical Association has just completed a survey of groups. The medical profession has made no definite protest against such attempts to lower the cost of medical care.

"The system called contract practice includes numerous modifications, varying from the simple relationship between a physician who contracts with a single individual for a specified sum to take care of all of his medical needs during the years to the system whereby a corporation contracts with a group of physicians for a fixed sum to take care of all the medical needs of all employees and their families for a year.

At its best this is a debasement of scientific medicine. In the first place the responsibility of the physician is to the employer and not to his patient. In the second place the necessities of business rather than the needs of the patient dominate the picture. Cases are known in which a contract practitioner has had to see seventy patients in a single day. They almost had to meet him naked on their doorsteps if he was to provide anything more than a careless and perfunctory examination. The contractor must break even on his contract. Builders have been known to skimp materials and even to wreck buildings because they underbid.

"The judicial council formulated certain conditions that absolutely establish a contract as being unfair and unethical. Certainly when the compensation received is inadequate, as based on the usual fees paid for the same kind of service by the same class of people in the community; when the compensation is so low as to make it impossible to render competent service; when there is underbidding by physicians in order to secure the contract, and when a reasonable degree of free choice of physician is denied those cared for, contract practice is unfair, unscientific, unethical and harmful both to the public and to the medical profession.

"More than twenty-five nations are experimenting today on their people with what is called compulsory health insurance, the panel system, socialized medicine, communistic medicine and state medicine. There is not a single country in which the method there existing has been established as a success. Such methods represent standardization with the glorification of mediocrity. When human beings are put at a level in relation to any of the affairs of life, that level is invariably a low level. The philanthropist who wants to standardize medical care for the mass invariably has the best of highly personalized care for himself when he is sick. The personal physicians of Henry Ford, Edward A. Filene, John D. Rockefeller and Julius Rosenwald could no doubt recite some remarkable anecdotes of the medical idiosyncracies of these remarkable organizers of modern medical care. The social workers who direct the philanthropic activities of these enlightened leaders know where to pick the best of personal doctors for themselves. Moreover, when they do go into the clinics they somehow manage to get the kind of personal attention that is not generally bestowed upon the multitude.

"Among other experiments in medical practice are part-pay and over-pay university clinics, endowed hospital clinics, institutes for various diseases, and similar institutions. All are experiments that the medical profession will watch with interest. Today the profession holds fast to its view that medicine cannot be put on such a basis until human beings in general are robots.

"The American people have more automobiles than all the rest of the world together. They spend around a billion dollars annually for cosmetics, two billion for cigarets, and incredible sums for baseball games and motion pictures. Annually they put half a billion

dollars into Christmas savings which they withdraw late in December and blow for knickknacks, pretties and radios. The medical bill of the nation is approximately three billions of dollars of which at least one billion is wasted on quacks and charlatans, on patent medicines and bogus apparatus. Around one hundred million dollars is spent annually on preventive medicine. To an intelligent reader such statistics need neither interpretation nor comment.

"Insurance authorities are convinced that voluntary health insurance could be sold to the American people at reasonable cost if only they could be educated to health insurance as they have been to life insurance. Under such a system there might be free choice of physician and sufficient funds to meet the bills for hospital care. Greater organization of physicians around hospital and laboratories would tend to lower the costs of the overhead.

"Physicians must not be debased to the position of salaried employees of the state, of insurance companies or of commercial organizations. That way lies the destruction of individual initiative, the lessening of responsibility, the lowering of standards and the reduction of a great profession to the cellars of oblivion."

THE AVAILABILITY, QUALITY AND COST of RURAL MEDICAL SERVICE

INTERESTING STATISTICS ISSUED BY A
FARM MAGAZINE

The Farmers Wife, published at St. Paul, Minnesota, sent out a questionnaire to ascertain if possible the sort of medical service that is being given to rural communities. Eight hundred and sixty replies were received. The following detailed information, re-published in the *Bulletin of the American Medical Association*, should be of interest to all physicians. The figures are highly illuminating:

WHAT THE ANSWERS SHOW

- Number in the family now at home:
Average 4.64 persons
- Distance to nearest doctor:
Average 7.03 miles
0- 4 miles 39.7 per cent
5- 9 miles 40.0 per cent
10-14 miles 12.2 per cent
15 miles or more..... 8.1 per cent
- Time required by nearest doctor to reach the farm home in summer:
Average 30.1 minutes
0-14 minutes 16.4 per cent
15-29 minutes 41.9 per cent
30-59 minutes 30.2 per cent
1 hour or more..... 11.5 per cent
- Time required by nearest doctor to reach the farm home in winter:

- | | | | |
|--|-------|----------|---|
| Average | 56.3 | minutes | 16. Persons doing these school inspections: |
| 0- 14 minutes | 9.2 | per cent | Nurses did all or some part of 68 per cent. |
| 15- 29 minutes | 24.0 | per cent | Doctors did all or some part of 42.4 per cent. |
| 30- 59 minutes | 32.8 | per cent | Teachers did all or some part of 13 per cent. |
| 60-119 minutes | 19.0 | per cent | (In many instances, of course, doctors, nurses |
| 2 hours or more..... | 15.0 | per cent | and teachers cooperated in making the in- |
| 5. Patronage of the nearest doctor: | | | spections.) |
| Always | 55.2 | per cent | 17. Is health taught as part of school |
| For emergencies and minor ills | | | work? |
| only | 32.2 | per cent | "Yes" |
| Never | 12.6 | per cent | "No" |
| 6. Distance to doctor patronized, when | | | 18. Amount the doctor charges for a |
| he is not the nearest doctor: | | | home call: |
| Average | 19 | miles | Average |
| 7. Does the family doctor keep up-to-date? | | | \$ 0- 4 |
| "Yes" and "Reasonably so".... | 91.9 | per cent | \$ 5- 9 |
| "No" | 8.9 | per cent | \$10-14 |
| 8. Distance to nearest ear, eye, nose | | | \$15 or more..... |
| and throat specialist: | | | 19. Amount the doctor charges for an |
| Average | 27.6 | miles | office visit: |
| 0-14 miles | 43.3 | per cent | Average |
| 15-49 miles | 41.5 | per cent | 20. Was the doctor called when the last |
| 50 miles or more..... | 15.2 | per cent | baby was born? |
| 9. Distance to the nearest dentist: | | | "Yes" |
| Average | 14.25 | miles | "No" |
| 0- 9 miles | 61.9 | per cent | 21. Doctor's fee at time of last confine- |
| 10-19 miles | 28.5 | per cent | ment: |
| 20 miles or more..... | 9.6 | per cent | Average |
| 10. Are nurses available for care of sick | | | \$25 |
| within 12 hours? | | | 22. Hospital bill at time of last confine- |
| "Yes" | 82.4 | per cent | ment: |
| "No" | 17.6 | per cent | (149, or 17.3 per cent, of the 860 women replied) |
| 11. Distance to the nearest hospital: | | | Average |
| Average | 17.9 | miles | \$ 0-49 |
| 0- 9 miles | 28.7 | per cent | \$ 50-99 |
| 10-19 miles | 37.7 | per cent | \$100 or more..... |
| 20-49 miles | 28.5 | per cent | 23. Amount paid the family doctor last |
| 50 miles or more..... | 5.1 | per cent | year: |
| 12. Time required to reach the nearest | | | Average |
| hospital in summer: | | | No report |
| Average | 49.1 | minutes | \$ 1- 9 |
| 0-20 minutes | 25.0 | per cent | \$ 10-24 |
| 30-59 minutes | 36.9 | per cent | \$ 25-99 |
| 1 hour or more..... | 38.1 | per cent | \$100 or more |
| 13. Time required to reach the nearest | | | 24. Amount paid other doctors last year: |
| hospital in winter: | | | Average |
| Average | 97.1 | minutes | No report |
| 0- 29 minutes | 15.0 | per cent | \$ 1- 9 |
| 30- 59 minutes | 27.4 | per cent | \$10-49 |
| 60-119 minutes | 30.3 | per cent | \$50 or more..... |
| 120-179 minutes | 12.8 | per cent | 25. Amount paid the dentist last year: |
| 3 hours or more..... | 14.5 | per cent | Average |
| 14. Distance to the nearest drug store: | | | No report |
| Average | 11 | miles | \$ 1- 9 |
| 0- 4 miles | 33.6 | per cent | \$10-24 |
| 5-19 miles | 60.9 | per cent | \$25-49 |
| 20 miles or more..... | 5.5 | per cent | \$50 or more..... |
| 15. Do the children have annual health | | | 26. Amount paid the hospital last year: |
| inspections in school? | | | Average |
| "Yes" | 64 | per cent | No report |
| "No" | 36 | per cent | |

	\$ 1-24	5.6	per cent
	\$ 25-49	4.7	per cent
	\$ 50-99	6.7	per cent
	\$100 or more.....	4.5	per cent
27. Amount paid nurses last year:			
	Average	\$ 5.25	
	No report	88.5	per cent
	\$ 1- 9	1.2	per cent
	\$ 10-24	3.8	per cent
	\$ 25	5.5	per cent
	\$100 or more.....	1.0	per cent
28. Amount spent last year for medicines not included in doctor's fee:			
	Average	\$ 7.21	
	No report.....	29.1	per cent
	\$ 1- 4	21.3	per cent
	\$ 5- 9	20.8	per cent
	\$10-19	19.8	per cent
	\$20 or more.....	9.0	per cent
29. Amount spent last year for extra help on account of sickness:			
	Average	\$ 6.86	
	No report	79.5	per cent
	\$ 1-24	11.3	per cent
	\$25-49	5.1	per cent
	\$50 or more.....	4.1	per cent
30. Amount of other expense due to sickness last year:			
	Average	\$ 6.82	
	No report.....	85.8	per cent
	\$ 1-24	7.8	per cent
	\$25-49	2.8	per cent
	\$50 or more.....	3.6	per cent
31. Total expense due to sickness during the last year:			
	Average	\$104.94	
	No report.....	6.7	per cent
	I 1- 24	24.0	per cent
	\$ 25- 49	19.4	per cent
	\$ 50- 99	19.2	per cent
	\$ 100-199	17.2	per cent
	\$ 200-499	10.7	per cent
	\$ 500-999	2.0	per cent
	\$1,000 or more.....	.8	per cent

The following table shows how the farmers health dollar is spent:

Family doctor	\$0.28
Other doctors .....	.183
Dentist .....	.144
Hospital .....	.144
Nurses .....	.05
Medicines not included in doctor's fee.....	.069
Extra help on account of sickness.....	.065
Other expense due to sickness (loss time wages etc.) .....	.065

Total\$1.00

In the figures given in the foregoing pages have appeared averages for each item of cost, based on returns from 860 families. The following table summarizes these averages in its first column of figures, and gives

in the second column other averages based on the number of families who actually spent something for the respective items. This number of families is given in the third column.

For example, the average hospital expense last year for the 860 families was \$15.16, but for the 185 families who had a hospital experience the average was \$70.46.

Item	Average based on 860 families	Average based on No. of families in Col. 3	No. of families answering question
Family doctor	\$29.35	\$39.14	645
Other doctors	19.23	52.35	316
Dentist	15.06	22.92	565
Hospital	15.16	70.46	185
Nurses	5.25	45.57	99
Medicines not included in the doctor's fee.....	7.21	10.17	610
Extra help on account of sickness	6.86	33.53	176
Other expense due to sickness (lost wages, time, etc.)	6.82	48.09	122

BERMUDA AFTER THE A. M. A. CONVENTION

Here is a vacation trip that can be obtained with the American Medical Association Convention, that contains everything you have wanted.

The trip reveals at their best, the attractions of the Bermudas, one of the loveliest islands in the world. Bermuda, the island of perpetual springtime, is 675 miles southeast of New York reached in 48 hours of delightful sailing on the splendid and popular ships of the Furness Bermuda Line.

Frost is never known in Bermuda. The climate is mild and friendly owing to its latitude and to the influence of the nearby Gulf Stream.

Rich in scenic beauty both on land and in the surrounding waters; a paradise for sportsmen who find their pleasure in boating, fishing and all water sports; in golf and tennis, riding and a score of other activities on shore, Bermuda is a playground without equal in all the world.

Every detail of our trip has been arranged for, so that all the worries of travel will be taken off your hands. We will use the famous Motor Vessel Bermuda for this tour, which takes 6 days, 2 days each way at sea and 2 days in Bermuda. Those who desire to remain longer, can do so at the additional expense of the hotel, for the balance of their visit, as the Furness Bermuda Line maintains twice weekly service to and from Bermuda.

Lovers of tennis or golf will find ample opportunity to indulge in these sports on the island. Aside from the courts attached to our large hotel, there are a number of private tennis clubs and a number of golf courses that will all be available to our members. Conditions for boating, bathing and fishing are ideal. With a native pilot one may navigate the sounds and harbors, ex-

plore the uninhabited isles nearby and visit the headlands and bays that will not be accessible by roads.

Every evening while on the ship and in Bermuda, there will be dancing and a program of sightseeing has been arranged for those who desire to spend their time visiting the scenic beauties of Bermuda.

No passports are required for this trip, although Bermuda is a British Colony and thus a "Foreign Land." Bermuda has two delightful little towns; Hamilton, the capital, is a charming picture of white houses glistening in the bright sunlight, with many quaint English shops. St. Georges, with its quaint streets, was settled in 1612, three years after the Islands were claimed as a British possession by a group of colonists under Admiral Sir George Sommers, who were shipwrecked here on their way to Virginia.

A person who wants quiet and rest during his stay can find it any place on the islands. There are no clattering trolley cars, no whirring honking automobiles. The visitor imagines himself transported, as if by magic, to the quieter, less nerve racking and more dignified days of the past Century.

For descriptive booklets regarding this tour, write Messrs. Braude & Nasi, Tour Directors, 501 N. Wells Street, Chicago.

BEWARE THIS SOLICITOR

St. Joseph, Mo., March 30, 1931.

To the Editor: On February 23, this year, a solicitor victimized a number of physicians in St. Joseph. His plan was to solicit subscriptions to Harpers and other magazines and to offer sets of books as premiums. The subscription blank called for the payment of \$9.70 in ninety days. He was supplied with blanks, samples of binding and everything to indicate that he was a bona fide magazine salesman.

After he had secured the signature on the subscription blank, he explained in an indifferent manner that if the subscriber cared to pay cash, or by check, there was a discount of \$1.00, and the check could be made payable to "Harper Brothers Publishing Co.," the name printed on the subscription blank. The doctors "fell for it" and the next day he cashed the checks at a local bank and departed. He used the name T. T. McLean while here but has also used the name Leroy Dale.

Correspondence with the National Publishers Association, 15 West 37th St., New York, indicates that this person has been defrauding physicians in the Middle West for several months.

YOU ARE INVITED TO ATTEND OUR CANCER CLINIC

Dr. Joseph Colt Bloodgood of Johns Hopkins University, Baltimore, will conduct a morning and afternoon clinic, showing Bone Tumors and other new growths, at a meeting of the Radiological Section of the Wisconsin State Medical Society, Schroeder Hotel, Milwaukee, May 27, 28 and 29.

Presentation of cases will be by lantern slides and

include the following material: 1. Short clinical history (diagnosis omitted), 2. Photographs, 3. Radiographs, 4. Microphotographs, 5. Serial radiographs of cases treated by radiation.

Members of the Illinois State Medical Society are cordially invited to attend this meeting and show their interesting Bone Tumor cases at the clinics. Send us a list of the cases you desire to show.

Program of meeting, hotel reservation, and other information on request.

Frank W. Mackoy, M. D., Secretary,
Sacred Heart Sanitarium,
Milwaukee.

THE POLICY OF INTERFERENCE WITH THE PHYSICIAN AT THE SICK BED IS UNCIVILIZED

THE LAW AND THE DOCTORS

The American College of Physicians, meeting in Baltimore, voted a protest against the restrictive laws which interfere with their prescription of drugs and alcohol. The law, depriving the physician of discretion, denies reputability to the profession and endeavors to take from the patient the aid or relief which the doctor would give him. The restriction is based upon the assumption that the medical profession would go out of hand and become a social menace if it were permitted freedom of prescription.

If this assumption is not slanderous then the country is in a bad way, indeed, its sick being dependent upon professional men and women who would turn bootleggers and drug peddlers if the law did not police their medicine cases and prescription pads. In this respect the drug restrictions are even more barbaric than the whisky and malt limitations. They are the products of jaundiced minds gone quite off the handle in a voodooistic ecstasy.

The Wickersham commission hit the medical liquor restrictions as indefensible. The whole policy of interference with the physician at the sickbed is uncivilized. It is a part of the witch hunt, something out of an unbalanced mentality.—*Chicago Tribune*.

SOME RECENT OPINIONS ON ANIMAL EXPERIMENTATION

Charles W. Eliot, LL.D., Pres. Emeritus, Harvard University:

We owe to scientific experimentation on animals the means of saving hundreds of thousands of children within the past fifty years, and untold millions of children in the coming years. But it is not human beings alone that owe an immense debt to modern animal experimentation. Animals also owe to vivisection great deliverance from disease and death. All the agricultural industries in the United States are deeply indebted to animal experimentation.

Harry Pratt Judson, until recently President of Chicago University, Chicago, Illinois:

Men of real scientific attainments must not be pre-

vented from pursuing their investigations for the benefit of humanity by idle sentimentality.

His Eminence, Denis Cardinal Dougherty, Archbishop of Philadelphia, Pa.:

To forbid vivisection would be to hamper science, do a mischief to the human race, and foster misplaced sympathy.

Rt. Rev. C. H. Brent, Bishop of Western New York:

I sincerely hope that the efforts made by the antivivisectionists to eliminate this mode of scientific investigation will not meet with success.

Rev. John Haynes Holmes, Minister of the Community Church, New York:

As regards the surgeons who are engaged in this business of vivisection, I have to state that I do not believe for a single moment the charges that are so wantonly brought against them. I know some of these men. I have met the most distinguished of them, who has been for years under most virulent attack. I have gone through his laboratories, I have witnessed his performance of a vivisection experiment, which was of the character of most severe major operation. To accept the charges of cruelty against scientists of this type—this is a thing impossible to me.

Ernest Thompson Seton:

I learn now from your reply to the Baynes article that you are opposed to all experiments on living animals, and that you utterly condemn the work of the Pasteur Institute, the Rockefeller Institute and allied laboratories. I have to thank the studies of such institutions for the fact that my wife is alive today. Kindly accept my resignation from the Vivisection Investigation League, to take effect immediately.

Col. David S. White, Chief Veterinarian of the American Expeditionary Forces:

Anyone who is familiar with what vivisection has done for mankind and animal kind must realize its value to the world.

William J. Mayo, M. D., The Mayo Clinic, Rochester, Minn.:

My brother and I are strongly in favor of vivisection. In the clinic there are large laboratories in which a number of physicians are constantly at work on investigations which depend on animal experimentation.

President Angell of Yale University:

We find no obstacle to the practice of animal experimentation in any intuitive moral convictions, nor in the traditional morality of our race.

WHAT SCIENCE HAS DONE FOR THE DOG

1. We can now prevent and cure *rabies* in the dog.
2. We can now kill the *hookworm* which infests dogs as well as man and which makes it difficult for dog fanciers to raise dogs in the South.
3. We can now prevent and cure *blacktongue* in the dog.
4. We can do much to prevent and control *distemper*. The treatment is not perfect and further experiments must be done on the dog for the good of the dog.
5. We are now working to find a medicine that will kill the cruel *heartworm* in the dog.

6. We know how to operate on the dog and cure certain diseases of the thyroid gland and intestines.

7. We are learning about "puppy birth" in the dog which is important to dog fanciers.

8. We can prevent diseases in the dog due to improper food. Dogs need vitamins just as other animals do.

WHAT HAS ANTIVIVISECTION DONE FOR THE DOG?

1. Nothing. Antivivisection would prevent experiments on dogs for the sake of the dog. House Bill 453 would make it impossible for Veterinary Science to experiment on one dog for the sake of dogs as a group.

The leading Veterinarians are against this Bill: Dr. Robert Graham, University of Illinois; Dr. J. V. La Croix, Editor, North American Veterinarian, Evanston, Illinois; Dr. Maurice Hall, Bureau of Animal Industry, Washington, D. C.; Dr. John P. Turner, American Veterinarian Association; Dr. W. H. Welch, Chief Veterinarian, Illinois State Department of Agriculture, Springfield, Illinois and others.

A letter will follow telling what experimentation on dogs has done for man.

SOME INFORMATION RELATIVE TO VITAMINS

It is claimed that persons not receiving sufficient Vitamin A in their diet have discharges from their nose and sinus passages similar to the discharges of the latter stages of a common cold.

Vitamin A is found in egg yolk, milk, cod liver oil, and vegetables, such as lettuce.

Pyorrhea and tooth troubles associated with it may have the same cause as scurvy, a disease due to lack of Vitamin C, and occurring from insufficient fruits and vegetables in the diet.

How the four other known vitamins aid in maintaining human health: Vitamin B, found in root crops, greens, fruit, and yeasts, prevents beri-beri. Rickets, a disease of young children, is due to lack of Vitamin D, which is present in cod liver oil. Vitamin G, supplied by milk, lean meat, eggs, and vegetables, prevents pellagra. Vitamin E, occurring in white wheat and lean meat, seems to be essential to reproduction among rats.

MIMICRY OF PEPTIC ULCER

The symptoms of peptic ulcer are often simulated by other lesions and occasionally the mimicry may be very confusing. The cardinal symptoms, hunger pain and hemorrhage, are, however, usually associated with other evidence that may lead to a correct diagnosis. In the atypical cases of peptic ulcer, in which both hunger pain and hemorrhage are absent, and in cases simulating peptic ulcer, the diagnosis may be extremely perplexing and will require the combination of a careful clinical observation, a thorough laboratory study and a competent roentgenologic examination in order to determine the facts.—DR. J. SHELTON HORSLEY, Richmond, Va., in *Illinois M. J.*, Aug., 1929.

Original Articles

THYROIDECTOMY FOR THYROTOXICOSIS IN PATIENTS BEYOND THE FIFTIETH YEAR*

J. M. MORA, M. D.,

AND

E. I. GREENE, M. D.

Instructors in Surgery, University of Illinois College of Medicine and Northwestern University Medical School, respectively

CHICAGO

This report deals with a study of 200 thyrotoxic patients 50 years and older who were subjected to thyroidectomy. These cases occurred in a consecutive series of 1,060 patients operated upon for toxic goiter—18.8%. In other words, nearly one-fifth of the entire series consisted of patients fifty years of age or older. One hundred and fifteen (57.5%) were between 50 and 55 years, 38 (19%) between 56 and 60 years, 32 (16%) between 61 and 65, 12 (6%) between 66 and 70 years, and 3 (1.5%) were over 71 years. Of the latter three, two were seventy-six years old, and one 73, at the time of operation. The average age of the 200 cases was 56.6 years. There were 55 males and 145 females. This is somewhat below the usual proportion of women to men, which is usually given as 4 or 5 to 1.

The series comprised 133 cases (66.5%) of so-called primary hyperthyroidism (hyperplastic thyroids) and 67 (33.5%) cases of secondary hyperthyroidism (toxic adenoma). The period of duration of goiter varied from one month to fifty years. One hundred and nine patients were not aware of any thyroid enlargement; four were indefinite as to the exact duration; in the remaining cases in which definite data were obtainable, the average duration was 11.68 years.

The duration of symptoms varied from two weeks to 32 years, the average duration of the entire series being 23.2 months. In 44 cases, where there was some accuracy as to the knowledge of the interval between the appearance of the goiter and the onset of symptoms, the average interval was found to be 14.5 years. In one case, the interval was 50 years. In twenty-five instances, the goiter and symptoms appeared coincidentally. In one case, the symptoms pre-

ceded the appearance of the goiter by seven and one-half years.

Study of the symptoms (subjective and objective) reveals some interesting facts. The outstanding symptoms were weight loss (84.5%), tachycardia (73%), nervousness (67.5%), tremor (55.5%), weakness (43%), palpitation (41.5%), and exophthalmos (29%). Other less frequent and pronounced symptoms occurred as noted in Table 1. The question of weight loss is extremely interesting. It was the preponderant finding in our series. The weight loss in some of our patients was unusual—one patient lost 54 pounds in one month, another 40 pounds in one month, a third 45 pounds in five weeks, a fourth, 90 pounds in seven months; a fifth patient, while in the hospital being prepared for operation, lost seven pounds in eleven days in spite of every attempt to increase the caloric intake. The average weight loss in 135 cases in which accurate data were obtainable, was 31.2 pounds.

Bilateral exophthalmos was noted in 58 cases (29%); three cases exhibited unilateral exophthalmos—in two cases the left eye protruded, and in one case the right eye was involved.

The cardiac manifestations in this series were distributed as follows: 73% had tachycardia, 42.5% showed left heart enlargement on physical examination, 41.5% complained of palpitation; dyspnea was present in 22%, a systolic blow at the apex in 17.5%, while pre-operatively, 15% had auricular fibrillation. Cardiac decompensation was noted in 12% of the series; right heart enlargement, precordial distress, systolic and diastolic murmurs, paroxysmal tachycardia, gallop rhythm, and pulsus bigeminus were found in a smaller number of cases. Of the 85 cases with left heart enlargement, 25 showed persistence of the left ventricular hypertrophy after operation, all occurring in hearts which had been damaged. Of 30 cases of auricular fibrillation, 27 were restored to normal rhythm, post-operatively. Blood pressure readings corroborated what has been well established regarding a somewhat higher than normal pulse pressure. In this series, the average systolic pressure was 160 mm. of mercury, the average diastolic 80 mm. the average pulse pressure being 80 mm.

In 21 cases specific inciting factors were

*From the surgical service of Dr. H. M. Richter.

†Read before Section on Surgery, Illinois State Medical Meeting, May 20, 1930.

noted—five appeared to be of psychic origin, 16 of physical origin. The latter included acute infections and surgical procedures, and are tabulated in Table 2.

Our series comprised 58 cases of bilateral exophthalmos and three cases of unilateral exophthalmos. All but five returned to normal. In four instances the lesion became more marked following operation.

One-third of our patients had been treated medically over varying periods of time—in some instances amounting to several years—before coming to surgery. These therapeutic agents included the prolonged and indiscriminate use of iodine, radiotherapy, digitalis, thyroidectomized serum, thyroid extract, and the various "rest cures." Medical management was apparently ineffective, and it was only after adequate thyroidectomy that these patients were restored to normal.

In the 200 cases reported we were able to obtain accurate preoperative basal metabolic rates in 199. In the remaining case, we were unable to obtain an accurate reading because of extreme nervousness and poor cooperation. There were 591 preoperative metabolic readings in the 199 patients, an average of 2.97 rates per patient. The average preoperative basal rate was 41.6 (plus).

Without exception we noted a definite response to iodine in every case, despite the fact that in 20 cases the metabolic rate increased, with, however, distinct clinical improvement. Of these 20 cases, 14 were of the primary hyperplastic type, while 6 were nodular goiters. We also noted 26 cases in which the preoperative use of iodine made no appreciable change in the basal rates; 14 were adenomatous goiters, the remaining 12 being hyperplastic thyroids. Apparently the type of goiter was not the factor in the response to iodine.

Post-operative studies reveal the following: of the 200 cases, we were unable to obtain metabolic studies in 25 patients—there were six deaths—18 patients were unable to return for various reasons and we were unable to follow-up one patient because of a serious mental aberration. Accurate metabolic rates were obtained in the remaining 175 cases, the total number of readings amounting to 511, an average of 2.8 rates per patient. The average post-operative basal rate was -1.1 .

Four of the 175 cases have post-operative readings over $+15$. The first one with a $+21$ had a marked cardio-vascular-renal degeneration, a second with $+16$ relieved of her thyrotoxicosis, also has serious cardiac damage. The other two patients both clinically toxic have refused to cooperate for further study.

Post-operative hypothyroidism lasting from a few weeks to six or eight months were noted in 64 patients; five cases of mild temporary tetany were noted. There were six cases of temporary post-operative recurrent nerve trauma—two cases of persistent damage.

We have included in this series, seven so-called recurrent cases—four of these had been operated on elsewhere, three on this service. These cases do not represent relapses; they are cases of persistent hyperthyroidism, unrelieved because of inadequate surgery. In every instance, reoperation resulted in a return to normal of the basal metabolic rate.

There have been six deaths in this series of 200 cases. One death occurred in the remaining 860 cases under 50 years of age, which comprised this series. The total mortality of the entire series of 1,060 consecutive thyroidectomies for hyperthyroidism is 0.66%.

TABLE 1. SYMPTOMS ENCOUNTERED IN 200 CASES OF THYROTOXICOSIS IN PATIENTS OVER FIFTY YEARS OF AGE

	Cases	Per cent.
Weight loss	169	84.5
Tachycardia	146	73.0
Nervousness	135	67.5
Tremor	111	55.5
Weakness	86	43.0
Left heart enlargement.....	85	42.5
Palpitation	83	41.5
Irritability	60	30.0
Bilateral exophthalmos	58	29.0
Dyspnea	44	22.0
Systolic blow	35	17.5
Auricular fibrillation	30	15.0
Heat intolerance and excessive perspiration...	26	13.0
Cardiac decompensation	24	12.0
Polyphagia	14	7.0
Right heart enlargement.....	12	6.0
Nausea and vomiting.....	11	5.5
Fatigability	10	5.0
Restlessness	10	5.0
Diarrhea	9	4.5
Crying spells	9	4.5
Extrasystoles	8	4.0
Precordial distress	7	3.5
Dizziness	6	3.0
Sleeplessness	5	2.5
Psychoses	3	1.5
Systolic and diastolic murmurs.....	3	1.5
Crises	2	1.0
Dysphagia	2	1.0
Left exophthalmos	2	1.0

Right exophthalmos.....	1	0.5
Pigmentation	1	0.5
Paroxysmal tachycardia	1	0.5
Gallop rhythm	1	0.5
Diabetes	1	0.5
Pulsus bigeminus	1	0.5

TABLE 2. PRECIPITATING FACTORS IN 21 CASES OF THYROTOXICOSIS IN PATIENTS OVER FIFTY YEARS OF AGE

	Cases
Influenza	5
Nasal operation	1
Cataract operation	1
Acute laryngitis	1
Lobar pneumonia	1
Acute sore throat	2
Hemorrhoidectomy	1
Unusual mental stress	3
Financial reverses, 1 case	
Death in family, 4 cases	
Peritonsillar abscess	1
Acute appendicitis	1
Tonsillectomy	1
Radiotherapy	1

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HYPERPLASTIC SINUS DISEASE IN RELATION TO RETROBULBAR NEURITIS*

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Two hundred and three cases of retrobulbar neuritis were seen among 64,200 patients examined at the University of Tübingen in the years 1921 to 1928. The incidence reported by Scheerer is 0.3 per cent of retrobulbar neuritis among these eye patients. Affections of the nasal sinuses were present in three cases or 1.3 percent. Among 28,000 patients seen in the eye clinic at Zagreb, there were twelve cases of retrobulbar optic neuritis of nasal sinus origin.

In a study of twenty-four cases of retrobulbar optic neuritis made by Feigenbaum and Salzberger nineteen were of sinus origin of which sixteen were operated on. In the sixteen operative cases no gross or microscopic changes in the sinus membrane were found. They felt that a much higher percentage improved after operation and they advised opening the ethmoids and sphenoids.

The references to these reports in foreign literature during the past year reflect investigations inspired by more frequent cases of retrobulbar neuritis associated with hyperplastic sinusitis reported in the American journals. While

the frequency is rare the entity of hyperplastic sinus disease and retrobulbar neuritis is confirmed.

The close anatomical placement of the posterior ethmoidal sinuses and sphenoidal sinuses to the optic canal has been demonstrated by W. Blake Gibb, Knapp and others. The hyperplasia is described as a chronic, low grade, local inflammation with production of excessive connective tissue with edematous thickening of the mucosa of a catarrhal nature. Vail's statement is "hyperplasia of the sphenoid or ethmoid bone is a rarefying osteitis associated with inflammatory swelling and fibrous thickening of the mucous membrane lining their cavities, causing edematous tissue to fill them without formation of pus; the limiting wall called the capsule, is also thickened and the orbital wall is involved as well as the nasal." Peter explains the spread to the optic nerve by direct extension or by means of the posterior vein of Vossius which receives tributaries from the nose and posterior part of the orbit. "He showed that production of the enlarged blind spot could be accounted for by direct extension affecting the peripheral portion of the nerve which supplies the area of the retina immediately surrounding the disk, and that the central scotoma was caused by toxic material carried through the blood stream to the papillomacular bundle in the center of which lies the vein of Vossius." Herzog believes that the inflammation extends along vessels and lymph channels through the medullary spaces in the intervening bone, producing an inflammatory edema of the optic nerve sheath. Feigenbaum concurs in this explanation.

The patients seen by me observed diminished vision in one eye. Their foggy vision progressed within two or three days to 20/100 or 20/200 at the time of my examination. Cases are reported in which vision declines within a few days to loss of light perception. Early the only symptom is diminished vision with no pain nor objective signs of disturbed pupillary reaction nor distressed ocular movements.

The following is a typical case:

Mr. J. A. C., aged 30 years, linotype operator, came to me January 27, 1928. The vision of the right eye was blurred. The blur was noticed two days before and as it did not improve he sought relief. He had a slight general headache somewhat localized frontal and

*Read before Section on Eye, Ear, Nose and Throat, Illinois State Medical Meeting, May 21, 1930.

supraorbital. There was some pain in the eye or back of the eye. He had used his eyes much, often with overtime work at night. He had a cold recently but the nasal discharge was clear and watery. No pus was noticed by him nor seen by me. He said he did not have a cold the day he came in. The other eye has not bothered him and he was seeing with it the same as usual. He was wearing glasses constantly which were obtained one year previously, right eye $+0.50+0.50$, axis 90 degrees, left eye $+0.50+0.75$, axis 90 degrees. Vision of the affected right eye was 20/200; of the left eye 20/50. Manifest refraction showed no improvement of vision of the right eye with glasses. Vision of the left eye with glasses, $+0.25+0.50$, axis 90 degrees, was 20/20 minus one #.

The visual field taken on the day he came in showed but slight contraction of the limits of the field but there was marked central blurring for white, green and red.

The external eye and media were clear. Having in mind the poor vision I fancied there was slight pallor of the whole disk more marked in the temporal half.

Examination the following day under homatropine and cocain gave vision right eye 20/200, left eye 20/70, with lenses right eye $+1.25+0.25$ axis 90 degrees vision 20/100, left eye $+0.50+0.50$ axis 75 degrees vision 20/15. General physical examination by the family physician was negative including laboratory tests and Wassermann.

Nasal examination was essentially negative. No pus could be seen before or after shrinkage. The sinuses were x-rayed on the day he came in. General nasal irrigation was returned clear. X-ray report stated pathology was present in both ethmoids. Argyrol and adrenalin packing was continued daily without improvement. On January 31, four days after the first examination, I opened the ethmoidal sinuses of the right side. This was done as conservatively as possible beneath the middle turbinal bone.

February 17, 1928. Examination under homatropine and cocain showed vision right eye 20/65 but with glasses $+0.75+0.37$, 90 degrees 20/20 #; vision left eye 20/65 with glasses $+1.00+0.37$ axis 90 degrees 20/20 #.

April 14, 1928. Some blurring of vision was again noticed in the right eye. The blur subsided after 3 or 4 nasal treatments. Patient was last seen January 20 of this year when vision was normal with glasses.

As the disease progresses the pupil of the affected eye is often dilated and contracts sluggishly to light. In severe cases the pupil may be considerably larger than in the other eye and the pupillary reflex may be lost. A peculiar headache frequently develops which is described by the patient as a pain in the back of the eye. Pain may be mentioned on extreme movements of the eye.

The external eye is clear. The media are clear and negative throughout. The fundus is essentially negative. Some observers report

tortuosity of the vessels and later some blurring of the disk.

It would be a fatal mistake in a case of marked diminished vision to wait for something to be seen in the disk. Reports of retrobulbar neuritis associated with hyperplastic sinusitis from all over the world can not be wrong. The entity of this condition can be established when present in your patient.

Examination of the field of vision was known to physiologists. Von Graefe was the first to apply this means to diagnosis of disease of the eye. When other signs are not indicative the mapping of the visual field is as essential a part of our examination as that of the routine use of the ophthalmoscope. In the study of retrobulbar neuritis associated with hyperplastic sinusitis the visual field is a means of differential and the means of pathognomic diagnosis. The distinctive feature is central scotoma. This at first is usually small and separated from the blind spot but later may include it. In severe cases the peripheral fields may be greatly contracted. The field of the unaffected eye is normal.

We may remember central scotoma by recalling Herzog's explanation of the pathologic nature of this disorder. The pressure is from the edema of the optic nerve sheath upon the nerve itself and is equal upon the center of the nerve and on the periphery. The fibres supplying the macular region are the more delicate and sensitive and are therefore the first affected.

Before defining the plan of treatment one must consider the differential diagnosis of confusing conditions and causes.

Toxic amblyopia is gradual in onset with a history of habit of long continued drinking and smoking or over doses of drugs such as quinine. Small central scotoma may be found for colors but both eyes are involved; though one eye may be more affected than the other.

Congenital amblyopia is not progressive; the loss of vision in one eye may be suddenly noticed; it is often associated with a marked error of refraction.

Hysteria may be differentiated by the history, other signs of hysteria and tubular or overlapping visual fields.

Malingering may be excluded by tests for this condition.

It is important to differentiate the causes of

retrobulbar neuritis. The higher percentage is assigned to multiple sclerosis. The neuritis may be the first observed symptom of this disease. Further search may find a peculiar nystagmus on fixation, the presence of a paralysis of one of the extremities, with a fine tremor. Both eyes are usually affected in multiple sclerosis but not always. Retrobulbar neuritis following systemic infections will give the history of scarlet fever, typhoid fever or the acute infectious diseases; both eyes are usually involved. Urinalysis may indicate albuminuria or diabetes. Lues must always be considered as an important cause. Among other mentioned causes are anomalies of menstruation, pregnancy, lactation, acute loss of blood. Heredity and idiopathic causes are mentioned with the group of causes unknown.

Rheumatism has long been considered an active factor and antirheumatic treatment has often been of great value. After focal infection such as pathologic tonsils or apical abscesses the loss of vision is not so progressive and the fields do not show central scotoma; definite neuroretinitis is more apt to develop. Toxic absorption from body burns has excited retrobulbar neuritis. A history of a recent cold may direct our attention to the sinuses and the suppurative sinusitis may be the cause. Distinct optic neuritis observed with the ophthalmoscope while closely related to our problem is another story. The border line type of disease with similar etiology may influence our plan of treatment.

The diagnostic sign most indicative of sinus origin of acute retrobulbar neuritis is central scotoma of the visual field. Careful x-ray examination may add weight to the diagnosis. Information regarding the anatomy, location and size of the sinuses may influence the treatment as well as the diagnosis. Lipiodyl injections in the sinuses before taking the roentgenograms may determine the size and proximity of the sinuses to the optic canal. P. Watson Williams has detected anomalies by his "differential test" of irrigation with a fine canula.

In my opinion treatment should begin the hour the patient is seen. The method of nasal examination fortunately is also therapeutic. Steindorff advises against delay in treatment. Also he believes Herzog's dauteranism treatment to be of great aid in differential diagnosis.

Feigenbaum agrees with Herzog's theory of the direct spread of the infecting agents through the narrow spaces of the bone. He uses Herzog's treatment with good therapeutic results but feels that operation should be performed in severe cases.

The patient has unknowingly delayed treatment until vision has become bad. With good vision in one eye and no other disturbance he may become aware of the failing vision quite incidentally and suddenly. Topical applications of ephedrine as a part of nasal examination reduces the swelling and edema. Herzog's application of argyrol with adrenalin or ephedrine further reduces the edema and may be sufficient to relieve the neuritis. One should proceed with the careful taking of the history and not delay the taking of the visual fields. As medical treatment is often successful in these cases it appears unwarranted to operate before the positive diagnosis is made. It would be presumptive to diagnose retrobulbar neuritis associated with hyperplastic sinusitis without central scotoma in the visual field. (In my opinion the patient should be treated as well as the supposed pathology.)

Medical treatment may be continued while making the diagnosis. May there not be systemic disorders causing the hyperplastic sinusitis? The effects of focal infection, idiopathic or rheumatic conditions yield to medicinal measures. May not both retrobulbar neuritis and hyperplastic sinus disease be symptoms as well as pathologic entities? Elimination and salicylates are at least old and tried remedies. Would you not be chagrined to have operated on a patient whose later symptoms permitted the diagnosis of multiple sclerosis? Differential diagnosis is important, pathognomonic diagnosis is established by scotoma in the visual field, treatment is urgent. You are both the physician and the specialist.

The more frequent diagnosis of this condition in this country may be accounted for by the general discrimination of information regarding health problems. This in turn permits the physician to apply his scientific methods. More frequent use of the perimeter with careful scotometric study will establish more exact diagnosis with appreciation by the patient and credit to his consultant.

Wells Building.

HYPERESTHETIC RHINITIS AND ASTHMA DUE TO DIGESTIVE FERMENTS*

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Progress in the study of allergic disease is proceeding along many lines with much valuable information being produced. Much of this progress is made by the research worker. Important as research work is, it can not and does not lessen the need for clinical work. A part of this necessary clinical work is the detection of hitherto unknown substances capable of producing disease reactions. Although the greater number are probably known now, it is likely that there are still many unknown. One of the possible sources are the metabolic products of the patient's own body. The antigenic possibilities of the partially digested proteins of our foods and the products of bacterial action on both foodstuffs and body proteins must also be considered.

In the light of the case to be reported tonight we must also consider the possibility that when digestive enzymes are applied to tissues not normally protected against their action, or tissues deprived of normal protection, these tissues may be so altered that they become, in effect, foreign proteins. If such alteration does occur we can expect the development of a sensitization towards them in some individuals who are by inheritance or otherwise capable of such development.

The patient, a druggist, was referred to me in April, 1929, with a history that in October, 1924, he began to have, as he thought, a series of "colds" which soon became practically continuous. Sometimes a few days elapsed between the attacks of sneezing, itching of the nose and nasal discharge. Later asthma also began to trouble him. After a year or two he arranged for an operation on his nose because he was told his trouble was due to a deflected septum and enlarged turbinates. At the same time he was advised to take KI. This produced so much immediate relief that the operation was deferred. After a few weeks the relief was somewhat less

and he began to take calcidin. He continued to use either KI or calcidin with partial control of symptoms until near the first of the year 1929. At that time his local physician sent him to a nose and throat specialist who operated on his septum and turbinates. The resulting better air drainage produced considerable improvement in the symptoms. However, his sneezing continued and the asthma troubled him very much. The asthma was especially bad on exertion, such as stair climbing, etc. His physician now examined him and found a typical allergic nose. He accordingly referred him to me for diagnosis.

On taking his history I learned that two brothers and a sister were victims of hay fever. He stated that his symptoms were especially bad when he was filling prescriptions. He suspected papain and caroid, digestive ferments made from the tropical fruit, carica papaya, also the proprietary digestive ferments peptenzyme and lactopeptine as causes of his trouble. He had in fact asked his local physicians not to prescribe them in powder form. He stated that he was better since they had stopped prescribing them.

Skin tests were made by the cutaneous method with results as follows:

Papain.....2 Plus	Eggs .....Doubtful
Lactopeptine .....Doubtful	Pancreatin .....2 Plus
Duck Feather.....Doubtful	Peptenzyme .....1 Plus
Scale Pepsin.....2 Plus	Lycopodium .....1 Plus
Caroid .....1 Plus	Pork .....Negative
Goose Feather.....1 Plus	

Many other tests were made but will not be reported here because they were negative. The tests with pepsin and pancreatin were made because both peptenzyme and lactopeptine contain these ferments though in larger proportion in peptenzyme. This larger proportion accounts for the more marked reaction to peptenzyme. The test with pork was made because of the origin of pepsin and pancreatin.

On witnessing the marked reaction to papain the patient volunteered the information that he had recently tasted a solution of caroid and as a result he had a swelling of his lips.

The test with lycopodium was made because he used frequently in dispensing, and I thought it likely that he might have developed a sensitization to it.

Although his trouble was much worse when in his pharmacy he was directed to sleep without

*Address before the Chicago Society of Allergy, February, 1930.

a feather pillow and to avoid eggs. Since it was difficult to entirely avoid the digestive ferments an attempt to desensitize against peptenzyme and papain was advised. His physician was furnished with solutions of the ferments for the purpose. The first injection of papain in a dose of .1 cc of the 1-10000 solution caused an intense local reaction on the arm and the dose had to be reduced to less than one-fourth that amount. After that no trouble was reported.

Present conditions: He is very much improved in every way. His general health is good. His nasal and bronchial troubles are very slight, although he is still sensitive enough to have symptoms if he fills a prescription containing the ferments in powder form. He does not have any trouble if he does not personally dispense them.

He stated to me recently that he suspected that he had developed a sensitization to flaxseed. I therefore tested him with flaxseed protein and obtained a small reaction. Since Grafton Tyler Brown¹ had reported greater reactions with flaxseed meal than with the proteins, I made a test with that. The result was a 2 plus reaction.

In the available literature I have found references to allergic reactions to papain but no particulars of the cases were given. I have failed to find any instance where the symptoms led to a suspicion that either pepsin or pancreatin was an etiologic factor, nor any case where they were tested.

It seems probable that allergic reactions to these various ferments may be quite common since I have had verbal reports of three other druggists in Chicago who have asthma from caroid and one from peptenzyme. In this connection I had a report from a physician that he had a patient who developed cramps and diarrhoea immediately after taking a dose of essence of caroid. Repetition of the dose was refused so coincidence could not be ruled out. However, this incident and the cases noted above makes it advisable that we keep allergy to these ferments in mind as a possible cause of disease conditions. It may also be the factor in otherwise unexplained drug disagreements. The offenders may be the digestive ferments present in the vehicles we use so often in our prescriptions.

Note: Since reading the above report I have been informed of two additional cases of sensitization to caroid. One case was that of a druggist who had asthma whenever he dispensed powdered caroid. On two occasions the proprietor of the store returned to find him unconscious as a result of an acute attack.

The other case took a single dose of a mixture of caroid with soda bicarbonate. He almost immediately had an attack of urticaria and also angioneurotic edema of the face with great interference with breathing. Whether the dyspnea was due to asthma or to edema of the larynx I could not learn. He was relieved by adrenalin.

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OCULAR MUSCLE IMBALANCE

A METHOD OF DIAGNOSIS AND REPORT OF CASE

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The more one studies the subject of eye muscle imbalance out of the average text-books, the more confused does he become. Apparently here is a field wherein the authors found themselves as befogged and impotent as is the average practicing oculist, and for the mere sake of rendering their texts complete, assembled from references a mess of heterogeneous data which affords the reader no basis for intelligent comprehension or for action.

I believe that I discern the rebirth of a keener interest in problems of this nature, and this paper then is appearing at an opportune time. Not to be guilty myself of the very faults that I have just condemned, bringing forth a complexity of ideas that bewilder more than they instruct, I will confine my remarks to two simple propositions. First I will illustrate and describe the method I use in detecting muscular anomalies. Second I will report on a simple case of low degree exophoria, accompanied, however, by severe symptoms and its successful management.

Referring to the photograph of a corner of my refracting room, observe, above and to the left, a so-called twentieth century test cabinet, suspended below it a phoria chart with reverse lettering, below this the refracting table with test lenses, a light and instruments for ophthalmological examination. To the right is the chair for the patient. Attached to a wall bracket in position to swing in front of the patient is a

1. Grafton Tyler Brown: Linseed Meal Sensitization, *Annals of Internal Medicine*, Vol. 4, pages 601-602, Dec., 1930.

modified phorometer, with three pairs of units. Nearest the patient are a pair of lens cells, in the middle pair of rotary prisms, each rotary combination affording a placement of one to



Fig. 1. Lay-out for measuring phorias.

thirty degrees of prism with axis in any meridian desired, in front a pair of fixed three degree vertical displacing prisms, the one swinging into position before the left eye with its base down, and the other swings before the right eye with its base up. Two adjusting screws are also provided, one for leveling the instrument, the other for regulating the pupillary distance.

Directions for use of the apparatus are as follows: First determine the patient's manifest correction and place in the lens cells. Then swing the three diopter prism base down before the left eye. This displaces the image seen by this eye upward, and usually causes diplopia. It may not, however, due to a well developed fusion function on the part of the patient. In such case also swing the three diopter prism base up in front of the right eye under which strength of vertical prism further maintenance of fusion will be impossible.

When vertical diplopia has been established, the upper image as stated belongs to the left eye, the lower to the right. Ask the patient if the upper crossed figure or target on the chart ap-

pears directly over the lower target. If to one side, which side? If the two targets are in exact vertical alignment, orthophoria is indicated. An upper target to the right indicates exophoria, to the left esophoria.

It is unfortunate that in the photographic reproduction incorporated in this article, the central crossed figure and the vertical line through it on the phoria chart, are faded almost to a condition of invisibility.

The spacing between adjacent numbers or letters of the scale on the chart in all instances is equivalent to a prismatic displacement of one diopter. The actual distance of these spaces on the chart that I use is 2.1 inches. This figure is simply arrived at from the consideration that in my office the distance between the chart and the patient's eyes as seen through a mirror measures 17.5 feet or 210 inches. A one diopter prism is a prism of such strength as will displace the image of an object seen, through one hundredth of the distance to which the object is removed. The correlation of the factors, 2.1 inches of spacing on the scale of the chart, and 210 inches distance of the chart from the patient's eyes hence is obvious.

Proceeding, tell the patient to observe the long line or stem extending vertically through the center of each target. In exophoria the long line or stem of the upper target will point downward toward one of the numbers in the scale of the lower chart. Ask the patient, to which number in the lower scale, this upper stem points at the nearest. If, for instance, it points at 2, we immediately have a reading of two diopters of exophoria. In esophoria, ask the patient to which letter in the lower scale, the upper stem points the nearest. Assume, for example, that the stem points halfway between A and B, and we have a reading of 1.5 diopters of esophoria.

The case that I have to report is that of Mr. D. W., age 46, who first appeared in my office on June 9, 1930. The patient requested a fitting with a new pair of glasses, having lost his old ones after wearing them without change for nine years.

The following corrections were accepted by the patient:

Manifest:

Right eye, +50 sphere +25 cylinder axis 90, Vision 20/20.

Left eye, +75 sphere, Vision 20/15.

Homatrophine:

Right eye +1.25 sphere +25 cylinder axis 90, Vision 20/20.

Left eye +1.50 sphere, Vision 20/15.

Post cycloplegic.

The full homatropine correction caused but slight blurring at a distance, and in as far as the patient was adverse to the use of bifocals, it was so prescribed with the idea of its serving the requirements both of distant and of near vision. An exophoria of 2.5 diopters was present, and at this time was considered so trivial as to require no special management.

The patient returned on June 23, 1930, with a complaint of severe pains which located themselves in back of the eyeballs and in the forward part of the temples. Nearly always they would come on during a trip in a street car or an automobile, and often thereafter they would last through and keep the patient awake most of the night. Judging from his haggard appearance, the account of suffering endured was probably not exaggerated.

The power of the lenses were now each reduced one-quarter of a diopter, with the idea that the forcing of accommodative effort with weaker lenses would increase the associated power of convergence and counteract the exophoria. This is orthodox teaching and procedure. The patient gave these lenses a thorough trial, but with a continuation of symptoms until November 5, 1930.

Starting on this date, I subjected the patient to daily base out prism exercises, using the Wrisley prisms of the phorometer, and continuing steadily for two weeks. At the conclusion of each exercise period, a phoria test indicated about one diopter of esophoria, in other words, a slight over correction of the imbalance. However the effect would not and could not be made to last, as on each succeeding day, before resuming a seance, a test would show the same 2.5 diopters of exophoria. At the end of two weeks in the office, the patient was advised to continue at home fifteen to twenty minute daily practice at exercising his convergence on a pencil point, which at the end of another two weeks he claimed he had faithfully done. But the imbalance still persisted and also the ocular discomfort.

I was now convinced that the text-book idea of overcoming an exophoria by building up an increased power and tonus in the convergence muscles through any sort of exercise was something extremely difficult to realize. And although another text-book tradition is that it is not wise in cases of outward imbalance to give base in prisms for constant wear, as such prisms favor and tend to increase the deviation, nevertheless on January 5, 1931, I furnished this patient with new lenses of the same sphere and cylinder correction, with the additional incorporation in each of a one diopter base in prism. The patient returned to the office two weeks later, radiating smiles and satisfaction, and reporting complete relief of symptoms, automobile and street car trips notwithstanding.

On March 6, 1931, the patient again presented

himself to report a continued complete absence of all ocular discomfort. Moreover, a phoria test with glasses on, now revealed the existence of one diopter of exophoria only, so that the cure is in process of becoming functional as well as being symptomatic.

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PRIVATE SANATORIA FOR MENTAL PATIENTS IN ILLINOIS

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Private institutions in Illinois for the care of mental patients include: (a) sanatoria, (b) homes, and (c) schools for defectives. This discussion is concerned primarily with the sanatoria.

Until quite recently, no line of distinction has been drawn between a sanatorium and a home. Indeed no one seems ever to have collected sufficient data to make such a differentiation possible. This unfortunate situation has been ended by the Illinois Society for Mental Hygiene, whose representative recently made a personal visit* to every private institution known to house mental patients or defectives within the state. As a result of this inspection tour, the differences between sanatoria and homes have been made clear and a basis of classification arrived at.

1. Briefly stated, a sanatorium is housed in a building usually erected for sanatorium purposes and offering room for (a) social intercourse (parlors, sun porches), (b) recreational activities (games, gymnasium) and (c) treatment (hydrotherapy, occupational therapy), in addition to its facilities for eating and sleeping; a home, on the other hand, is almost invariably housed in a building originally constructed for residential purposes and offering little or nothing in addition to living quarters.

2. Moreover, a sanatorium contains a reasonable amount of equipment for (a) medical diagnosis, (b) protection of its patients against accidents, (c) emergency relief measures, and (d) therapeutic procedures; a home is deficient in some or all of these points.

3. Again, (a) a sanatorium either has a resi-

*These inspections were made during February, March and April (1930), and this discussion of sanatoria is based on the inspection report.

dent physician (i. e., present in the building day and night) or has one or two physicians who call one or more times daily and are definitely responsible for all patients; (b) it has for its head nurse one who has graduated from a general hospital or has had special training in a state hospital, or both; (c) it has a nursing staff of at least one nurse for every three patients; in a home, the medical and nursing supervision is of a lower order.

4. Finally, in a sanatorium, the number of mental patients, what has happened and is happening to them, and their progress toward recovery, are more or less matters of record, which may be investigated and reported on; in a home, these things are largely matters of memory, and may or may not be inquired into according to the will of the person in charge.

When classified in relation to the items mentioned above, only eleven of the private institutions for mental patients in Illinois may be called sanatoria. There are six others whose names include the word "sanitarium," but these, together with nine that are known by other names—fifteen in all—are lacking in too many important respects to be given a higher classification than that of homes. In the accompanying table, in which the personnel and equipment of sanatoria and homes are compared, these deficiencies will be easily recognized. No odium attaches to the classification made here; in many of these homes it is frankly admitted that only home care is attempted; the only requisite is that their classification be understood, so that the medical profession and the general public will not expect of these homes a service they are not prepared to give. In defense of these homes it may be said that they usually charge an appreciably lower rate than do sanatoria.

In the eleven sanatoria of the state, the *buildings and grounds* are for the most part satisfactory. Six of the eleven are delightful places to live in. The buildings and their furnishings are clean and comfortable, and give evidence of a real interest in the patient's reaction to environment.

The *equipment* in seven of these sanatoria may be called complete; i. e., seven are reasonably well equipped for 1. diagnostic, 2. protective, 3. emergency and 4. therapeutic care, while four are lacking in one or more of these four particulars. But this lack is usually made

up to some degree in some other way. As a conspicuous example of such compensation one of the "down state" institutions may be cited; it has no occupational therapy department, but it has a remarkable department of hydrotherapy and a hundred acres of wooded hills and farmland, including two golf courses. By means of baths, massage, games, long walks and some farm work, the patients are kept busy without occupational therapy.

The *personnel* in six of the eleven sanatoria includes a resident physician. At four of the other five, two physicians make daily visits, while at the one remaining one physician calls daily. In ten of the eleven the head nurse is a graduate of a general hospital, and in the one remaining the head nurse has had a long period of training in state institutions. In ten of these sanatoria the ratio of nurses to patients is as high as (or higher than) one to three; in the one remaining this ratio probably obtains among the mental patients, though not so high among rheumatics and others under treatment for physical ills only; in one of the sanatoria there are more nurses than patients.

Among the *patients* of all these sanatoria there is evident an effort to safeguard social relationships and yet encourage normal social contacts. There is preparation, on the part of these institutions, to protect, and even to entertain, as well as to treat the patients. The human element is given even more attention than is usual in general hospitals. Records in a few of them are remarkably full and complete; in a few others they might easily be improved.

Aside from the eleven institutions above discussed, Illinois has three or more private sanatoria that operate in the field of general medicine and state that mental patients are not wanted, but into which mental patients are sometimes received. These institutions are splendidly equipped and conducted—but not for mental patients. They are not prepared to protect mental patients against the accidents more or less peculiar to their ills, nor can they meet the emergencies that arise. Consequently, a considerable number of these patients must sooner or later be removed post-haste to the institution offering such facilities. Such a procedure is both expensive and dangerous, but it is the natural outgrowth of a prejudice that will yet require years to overcome, and it is fostered by the institution's

inclination both to accommodate and to make money. The solution to this problem is not clear.

There are yet a few other sanatoria, also operating in the field of general medicine, not prepared to give mental patients proper care but openly welcoming or even soliciting such patients. These are institutions that are deficient in one or more vital points, and they drag in a few mental patients because their legitimate field of general medicine fails to yield them patients enough to satisfy them financially. For the patients, this is a misfortune; for the institutions, it is not so because they have no reputation to defend. Therefore such misfortune can probably be avoided or ended only by legal interference.

There are a few homes for mental patients that aspire to be classed as sanatoria. Such an aspiration is quite laudable—if it leads to the making of such improvements as will enable the institution to give its patients the care that the eleven sanatoria of the state now give. Of the fifteen homes now offering care for mental patients, not one has an occupational therapy department, and only two have continuous-flow tubs (which in a home for mental patients may be taken as the initial step in the building of a department of hydrotherapy). Eight of the fifteen are in charge of practical nurses—a term that can mean most anything or nothing at all. Nine are located in Chicago, in houses built for residential purposes. Most of them are reasonably well kept. The patients are roomed, boarded, and protected against accident. Physicians call at varying intervals. Sometimes the patients are taken out for walks. What else happens to them is open to question. Little or no records are kept, and an investigation would reveal only what the persons in charge were inclined to disclose.

Considered as homes, these places may be reasonably satisfactory. Many of their patients are seniles, and these pitiable left-overs from the life of yesterday probably receive more kind consideration in some of these houses than could possibly be accorded them in the small but bustling quarters of the city apartments of their relatives. But a mental patient whom therapeutic measures might restore to normal mental life is out of place in such a home unless available finances are insufficient to provide treatment in a sanatorium. Such a home can itself become a

sanatorium in only one way: by providing such buildings, such equipment, and such personnel as will enable it to give its patients proper therapeutic as well as custodial care. The eleven sanatoria of the state are doing that, and some are doing it remarkably well. A list of these sanatoria is given below.

SANATORIA IN ILLINOIS

No.	Name and Address	Class	Capacity	Patients	Nurses	Rates	Person in Charge
Aurora							
1.	Mercyville Sanatorium	..S	175	150	50	30-50	Sr. M. Cornelia
Batavia							
2.	Bellevue Pl. Sanatorium	..S	35	35	13	35-50	Dr. Amelia Zimmerman
Chicago							
3.	Chicago Sanatorium, 2828 Prairie Ave.	..S	135	40	20	30-100	Dr. A. B. Magnus
4.	Goodheart Sanatorium, 3358 S. Mich. Av.	S	20	16	13	30-50	Mrs. Ella Hart
5.	Parkway Sanatorium, 2622 Prairie Ave.	..S	40	30	11	25-100	Dr. B. J. Sherman
Elgin							
6.	Resthaven Sanatorium, 600 Villa St.	.....S	75	57	16	30-45	Miss Libbie Goll
Jacksonville							
7.	Norbury Sanatorium, 1631 Mound Av.	S	125	110	50	35-50	Dr. A. H. Dollear
Kenilworth							
8.	Kenilworth Sanatorium	...S	30	25	28	55 up (40 for nurse)	Dr. J. M. Robbins
Peoria							
9.	Michell Farm	...S	20	18	6	46-51	Dr. George W. Michell
10.	Peoria Sanatorium, 106 N. Glen Oak Ave.	S	24	17	6	51	Dr. George W. Michell
Rockford							
11.	Wilgus Sanatorium	....S	35	30	12	45	Dr. Egbert W. Fell
Totals			714	528	225		

No.	Class	Res. Phys.	H. Nurse a Grad.	Diag. Lab.	Fl. Tub	Occup. Ther. Dept.
1.	S	No	Yes	Yes	Yes	Yes
2.	S	Yes	Yes	No	No	Yes
3.	S	Yes	Yes	Yes	Yes	Yes
4.	S	No	Yes	No	Yes	Yes
5.	S	Yes	Yes	Yes	Yes	Yes
6.	S	No	Yes	No	Yes	No
7.	S	Yes	Yes	Yes	Yes	Yes
8.	S	Yes	Yes	Yes	Yes	Yes
9.	S	No	Yes	Yes	Yes	No
10.	S	No	No	Yes	Yes	No
11.	S	Yes	Yes	Yes	Yes	No
12.	H	No	No	No	No	No
13.	H	No	No	No	No	No
14.	H	No	Yes	No	No	No
15.	H	Yes	No	No	Yes	No
16.	H	Yes	Yes	No	Yes	No
17.	H	Yes	No	No	No	No
18.	H	No	Yes	No	No	No
19.	H	No	Yes	No	No	No
20.	H	No	No	No	No	No
21.	H	No	Yes	No	No	No
22.	H	No	No	No	No	No
23.	H	Yes	Yes	No	No	No
24.	H	No	Yes	No	No	No
25.	H	No	No	No	No	No
26.	H	No	No	No	No	No

SUMMARY AND COMPARISON

	Total Cap.	Total No. Patients	Total No. Nurses	Av. Cap.	Av. No. Patients	Av. No. Nurses
Sanatoria ...	714	528	225	66	57	20
Homes	219	163	52	14	11	4

	No. Res. Phys.	No. Grad. H. Nurse	No. Diag. Lab.	Fl. Tub	Occup. Ther. Dept.
Sanatoria	6	10	8	10	7
Homes	4	7	0	2	0

The average rates in a sanatorium are \$37.50 per week. The average rates in a home are \$22.50 per week.

At a sanatorium that has no resident physician, there are either one or two physicians who visit the sanatorium daily and are on call at other hours. At a home, daily visits are not usually made by any physician.

EFFECT OF INTRAPARTUM CARE ON THE MOTHER*

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The maternal death rate in the United States is not definitely known, but it is not an exaggeration to say that at least 20,000 women die every year as the direct or indirect result of childbirth. Of this number, approximately 8,000 die from

puerperal infection, 5,000 die as the result of eclampsia, 4,000 succumb to excessive loss of blood, and about 3,000 lose their lives from other causes associated with child-bearing. The number of women who are severely but not fatally injured during labor cannot be estimated, but it is undoubtedly enormous. The common belief is that between 50 and 60 per cent. of all the gynecological operations performed are necessitated by damage which occurs at the time of confinement.

This paper deals with the effect of intrapartum care on the mother. It is a well-established fact that the proper conduct of labor will considerably reduce both the maternal mortality and morbidity. We have proof of this all over the world, but I should like to analyze briefly the results obtained at the Chicago Lying-in Hospital. In this institution, during a period of nine years, there were 23,136 deliveries. The hospital is an "open" one and in addition to the regular staff, approximately 50 outside physicians deliver women in it. Practically all of these doctors are careful and conscientious, and they willingly conform to the prescribed technic. For obvious reasons the incidence of operative deliveries in this hospital is much higher than it is for general obstetric practice, hence there is occasion for increased maternal mortality and morbidity.

Among the 23,136 women there were 57 deaths, giving a total maternal death rate of 0.246 per cent., or 24.6 deaths per 10,000 births. For the entire registration area in the United States the incidence was 68 per 10,000 live births in 1921, 66 in 1924¹ and 65 in 1927². The death rate in our country in 1924 varied from 45 per 10,000 living births in Utah to 121 in Florida². In England and Wales for the year 1926 the maternal death rate was 51.4 per 10,000³, in Canada for the year 1926, it was 60⁴, and in the city of Amsterdam for 1928 it was 64⁵.

According to Woodbury¹, two fifths of all the maternal deaths in the registration area of the United States are due to septicemia. Hence, the most important single cause of these deaths is puerperal infection, which is the result of lack of surgical cleanliness. By means of careful asepsis, almost all of these deaths can be prevented. Nicoll² analyzed 696 maternal deaths which occurred in New York state by studying

*Read before the Child Hygiene Section of the American Public Health Association, October 2, 1929.

the death certificates and personal replies to questionnaires sent to the doctors who reported the deaths. The death certificates showed that 37 per cent of the deaths were due to puerperal sepsis, 21 per cent. to toxemia, and 9 per cent. to hemorrhage, but these figures are too low as indicated by the answers to the questionnaires. Furthermore, the death certificates showed that only 5 per cent. of the cases were operative, whereas the questionnaires revealed that 38 per cent of the cases had been operative.

The causes of death at the Chicago Lying-in Hospital were as follows:

	No.	Per-centage
Pneumonia (chiefly after general anesthesia).....	14	24.6
Toxemia	10	17.5
Heart disease	9	15.8
Abruptio placentae.....	6	10.5
Embolism	5	8.8
Peritonitis (one from gonorrhea).....	4	7.0
Septicemia	3	5.3
Rupture of uterus	3	5.3
Hemorrhage from placenta previa.....	1	1.8
Shock	1	1.8
Enlarged Thymus	1	1.8
	57	100.2

There were three deaths from septicemia but only one of these resulted from an infection which developed in the hospital.

The morbidity at the Chicago Lying-in Hospital has likewise been exceptionally low. The standard accepted is the most rigid reported, namely, every elevation of temperature up to 100° F. or above even if recorded only once from the moment of delivery until the patient is discharged from the hospital. Under this strict standard, the total morbidity among the 23,136 patients was 10.8 per cent. The morbidity standard of the British Medical Association reads as follows: "Puerperal morbidity should include all fatal cases and also all cases in which the temperature exceeds 100° F. on any two of the bi-daily readings from the end of the first to the eighth day after delivery." If we follow this standard the incidence of morbidity at the Chicago Lying-in Hospital was only 4.3 per cent., which is indeed very low. It is needless to emphasize that a fair proportion of this morbidity was due to extragenital causes.

The intrapartum care given the patients at the Chicago Lying-in Hospital is essentially the same as is given in any large teaching or special ma-

ternity hospital, and I shall attempt to outline the features of this type of management.

Each of the three stages of labor requires special consideration. In the first stage, it is generally agreed that the best results are obtained when a policy of watchful expectancy is followed. However, this should not be interpreted to mean that everything should be left to nature else many patients would be definitely neglected. It is assumed that long before a patient goes into labor, she has had a complete physical examination and her condition is refreshed in the mind of the physician by a re-reading of his prenatal notes. Most women who are in the throes of active labor have no inclination to drink or eat, but they should be encouraged and even made to drink a large amount of water. They should also be given a moderate amount of solid and semi-solid food, especially carbohydrates. In cases of prolonged labor, if a large amount of carbohydrate food cannot be eaten by the patient it is best to give glucose subcutaneously or intravenously, especially before an operative delivery. In cases where there has been great loss of blood as in placenta previa, blood transfusion is indicated. The bowels should be evacuated at least once every twelve hours or an enema given, unless the child is soon to be born. An enema at such a time is inadvisable because the liquid feces may be expelled during the delivery of the baby and the field will be contaminated. The bladder should frequently be emptied preferably by spontaneous action, else by catheter. Many women in labor do not think of emptying their bladder or prefer not to make the effort, hence the bladder must be watched carefully. A full bladder or rectum occasionally interferes with the normal mechanism of labor.

Sedatives such as morphine with the addition of atropine, magnesium sulphate or scopolamin should be given hypodermically in the first stage not only to relieve pain but also to preserve the patient's physical strength and her mental attitude. The psyche is a very important factor, especially in long, hard labors. It may not be amiss to add parenthetically, that since the morale of the patient's husband influences the patient considerably, it is important to say a few words of encouragement from time to time to the

husband and make certain he obtains some rest as well as the patient.

In the vast majority of cases, the entire first stage can be conducted by means of abdominal and rectal examinations, but a vaginal examination should be made when there is any doubt. The physician should constantly be on the alert for complications such as threatened rupture of the uterus, abruptio placentae, eclampsia, and cardiac collapse. It is important that an occipito-posterior position be recognized early, for this position is a frequent one, and if it persists and is unrecognized, it may cause much grief.

Cases of definite cephalo-pelvic disproportion must be detected early and cesarean section performed. It is gross negligence to overlook such a condition until a patient has been in labor so long that a cesarean section is a dangerous procedure for the mother. However, the low cervical cesarean section, which is by far the safest type of cesarean section, may be performed even after labor has been in progress a relatively long time.

Attention should be paid to the asepsis and antisepsis of the patient's surroundings. In making rectal examinations sterilized gloves should be used and special care should be taken to avoid inserting the thumb into the vaginal introitus. Special preparations are of course necessary when vaginal manipulations are contemplated. People with respiratory infections, boils or other infections, should be kept away from the patients in labor and labor rooms, and this applies even if the husband is involved. It is taken for granted that if the doctor has an infection he will not conduct a labor case. The physician himself and his assistants, be they doctors or nurses, should scrupulously avoid contact with infectious cases and pus cases, and should not visit pathological and bacteriological laboratories while in attendance upon a patient in labor.

After the cervix is completely effaced and dilated, that is when the second stage has begun, the physician should not leave the patient. Sedative drugs should not be given at this time nor should they be given for an hour or two before the second stage has begun, because occasionally they have a detrimental effect on the child. After complete dilatation, an inhalation anesthetic such as ethylene or nitrous oxide may be given. In most cases, however, the hypodermics administered during the first stage make

an anesthetic unnecessary until shortly before actual delivery takes place. Wherever possible, local anesthesia should be used instead of an inhalation anesthetic, for the risk is decidedly less to both mother and baby. In patients with toxemia and pulmonary tuberculosis general anesthesia is contraindicated. In toxemic patients the anesthetic adds to the intoxication already present and distinctly increases the risk of pneumonia.

Scrupulous care should be paid to asepsis and antisepsis just as for any major operation. Every person in the delivery room should wear a white uniform, or gown, a cap and a mask. It is very important that the mask should cover not only the mouth but also the nose. Mercurochrome liberally used outside, and in operative cases inside the vagina, helps perhaps to reduce the morbidity. In delivering the child, the head should be permitted to escape very slowly and in extreme flexion. The latter maneuver brings the smallest fetal diameters to the outlet and diminishes the frequency of perineal lacerations. An episiotomy should be performed when the perineum does not stretch readily or if there is any danger to the fetus in the prolongation of labor. The episiotomy may easily be performed under direct infiltration anesthesia.

The fetal heart tones should carefully be controlled not only in the first stage but also in the second. During actual delivery, be it spontaneous or by means of forceps, the De Lee-Hillis head stethoscope is very useful. Irregularity in the fetal heart tones may indicate distress not only in the child but occasionally danger to the mother, as for example in premature separation of the placenta. Operative interference should not be undertaken before there is complete effacement and dilatation of the cervix without a very urgent reason, because the consequences may be serious. In case of heart disease, pulmonary tuberculosis, toxemia, Graves' disease and other such afflictions, delivery should be accomplished as soon after complete dilatation of the cervix as is consistent with the safety of the mother. A forceps delivery may occasionally be avoided by a properly performed Kristeller expression. Local anesthesia should be used in these cases whenever feasible.

Pituitrin, unless used to induce labor, should never be used before the baby is born. Too many

evil results have been observed even after the administration of very small doses.

The proper conduct of the third stage of labor is of the greatest importance because according to De Lee⁶ "more women die from accidents of the third stage of labor than during the other two combined." Strict conservatism should be the rule in this stage unless hemorrhage forces activity. If manual removal of the placenta becomes necessary it is safest to change gloves and liberally use mercurochrome in the vagina. The routine use of pituitrin after the baby is born and of ergotamin tartrate after the placenta is delivered will prevent excessive loss of blood in many cases. If hemorrhage cannot readily be controlled by drugs and massage, uterine tamponade should be resorted to without delay. It is not good policy to wait until the patient is exsanguinated before doing this, but asepsis must be as perfect as possible, even though haste is imperative. Women who lose a great deal of blood during labor, make slow recoveries, they frequently become infected, they do not nurse their babies well and they may not regain their health for a long time.

All danger is not over when the third stage has been completed. Hence it is advisable to have some one watch the patient closely for at least one hour after delivery. Patients who have had a general anesthetic must be closely guarded for many hours.

The foregoing brief outline indicates the care given the patient during labor at the Chicago Lying-in Hospital. We firmly believe that if all women in labor received such supervision and treatment, the maternal mortality and morbidity would be considerably reduced.

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PULMONARY TUBERCULOSIS AND THE CONSTITUTIONAL ANOMALIES

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One of the most interesting observations, a most fascinating study, is that which is observed in the fertilized ovum of the human being, the intimate union of the male and female reproductive cells. All the characteristics and the potentialities of the species are determined almost immediately at the time of this union and not only the kind and that which belong to the sex conditions, but all that which applies to the individual familial group, the character, personality, intelligence, habits, temperamental endowment, idiosyncrasies, etc., are all embodied here as latent forms or as latent factors and may be designated as the individual's constitution or the genotype. These many traits are usually conveyed to the embryo intrauterinely, that is, before birth, and are then spoken of as the normally inherited personalities. However, familial abnormalities, parental or congenital, that is, before birth, may also be transferred to the progeny, to the offspring from disharmonious parents, from a dyscrasia existing in either parent or in both parents or perhaps from a familial malformation of the ovum, etc. Generally speaking, however, what we observe as characteristic abnormal signs in an individual is usually an acquired abnormality, extrauterinely, the result of a gradual interference with the constitutional tendency or habits of the body, like nutritional disturbances, the underfed and the undernourished, the faulty surroundings or environments, the result of exposure to the extremes of heat or cold, trauma or injuries, sickness or disease, climatic conditions, functional demands of the body, etc. These may all be grouped as the result of the individual's bodily surroundings and may be designated as tissue or organ disturbances or abnormalities or better as, "constitutional anomalies."

What is the important relationship between the individual's constitution as a whole and the inheritance factor to tuberculosis? Tuberculosis pictures itself as the antagonism between the tubercle bacillus on the one hand and the immunizing possibilities of the organism on the other. If the primary infection, in infant life,

has passed off very mildly or led, either very slowly or very rapidly to a fatal disease, this was not dependent alone on the quantity and the virulence of the entering bacilli but undoubtedly also upon the resistance offered by the organism at the time of implantation and then again when later, in adult life, the process assumes the malignant type, the exudative form of the disease or perhaps pursues the mild, more benign, the proliferative, fibrous or indurated form; this also is not determined alone by the number of bacilli or their virulence but chiefly by the degree and the amount of resistance offered by the infected individual; this all is again dependent either upon the degree of immunity acquired following the primary infection or upon the amount of inherent reserve force which the body usually offers against any or all infections; hence, various constitutional factors are necessary for health such as free cellular functioning, an active lymph flow, a good circulating and an unhampered blood supply upon all these activities, the resistance of the body against the inroads of the disease producing bacteria, the tubercle bacillus, is dependent and if in this resistance against the tubercle bacillus these constitutional factors are lowered, lessening the resistance, then we speak of a constitutional disposition, tendency or anlage to tuberculous disease existing in the individual. It is now generally accepted as an established fact that there must exist in the human, in every person a general disposition or tendency to become tuberculously infected and later perhaps tuberculously diseased as well. The difference in the course pursued after the implantation of the tubercle bacillus, is, as stated above, due chiefly to the virulence of the bacteria, to the number of bacteria entering the human body and to the receptivity of the host and that following the implantation relatively only a very small proportion, about 10 per cent., of those who have become infected actively develop the disease or become tuberculous. Close observation has taught us that there must be in the human varying degrees or an individual tendency to the disease and as the implantation of the tubercle bacillus may be followed in the one by either active disease, or in the other, by no body disturbance, whatsoever, we must conclude that the different course of the same disease pursued in different individuals must be dependent upon

positive constitutional factors. This all brings us back to the question of the relationship existing between the individual's constitution and tuberculous disease, to differentiate between the important points of infection and the subsequent course of the disease, the constitutional factors, chiefly, degenerative changes in various organs and tissues existing in the individual. In defining our understanding of a constitutional factor it would be of advantage if by means of abnormal signs the constitution could be stigmatized, if it were possible to describe the abnormal factors by noticeable degenerative stigmas in the individual. In tuberculosis this would be of the greatest importance because in this disease so many degenerative stigmata are demonstrable. These various signs of degenerative changes described in connection with tuberculosis are usually minor abnormalities, the result of a disturbed or interrupted development. These disturbances are usually noticeable in an abnormal growth of the hair, the teeth, glands, internal or external organs or in the body as a whole. All these various signs of degenerative changes or constitutional anomalies in the human body may for convenience be grouped as belonging to one of three varieties: (a) Either as an osteal disturbance in the bony framework of the body, chiefly the thorax, or (b) as abnormalities observed over the various surfaces of the external body and (c) as abnormal conditions demonstrable on some of the internal organs.

First—The Osteal Group—The Bony Framework. (a) *The Phthisical Chest.* In the osteal group must first be placed those which are observed as abnormal signs on the contour of the chest and the deformity known as the *Habitus Phthisicus* was very early recognized and even at length described in the writings of the ancients, who, at that early time had noticed the fact that this condition predisposes to early tuberculosis. In this we find the long, narrow, flat chest described as phthisical. We find in this form of chest development a close relationship to heredity, the chest deformity which gives evidence of a previous tuberculous process, a tuberculous process having preceded or accompanied this type of chest development. It gives, however, no absolute proof of any connection between the phthisical chest and tuberculosis because it is very well known that tuberculosis is very fre-

quently found in individuals with a perfectly normal chest development. The phthisical chest usually embraces, more or less, all the stigmata of the other chest anomalies like the stenotic and infantile type with the addition of loss of fat, muscle degeneration, emaciation, cachexia, etc.

(b) *Abnormalities peculiar to the bony framework other than the phthisical chest.* 1. The

anatomical relationship between the morphological anomalies in the body and the development of pulmonary tuberculosis, may be divided into two groups according as the morphologic factor supplies either the disposition to the disease or is the result of an infection. The anatomical predisposition is only one of the many factors in the totality of this predisposition. The tuberculous groups may be arranged accordingly into: (a) Large trunks, the long types with small abdomen, the microsplanchnic, the typical "Habitus Phthisicus" and (b) short trunks, the brachy type with large abdomen, the megalosplanchnic, "Habitus Apoplecticus." The basis for such grouping is dependent upon the observation that, if among the many causes of a predisposition one may be found in which the habitus plays the leading role then this special habitus must be more frequently found in the tuberculous than amongst the non-tuberculous subjects. The statistical observation and anthropometric examination included 278 individuals—208 men and 70 women at the Umberto Sanatorium in Rome. Only longtype and brachy type individuals were considered and it was observed that the long types were on an average twice as frequent amongst the tuberculous as amongst the healthy and that the short types offered only a very small percentage. This proved that the habitus phthisicus greatly favors the morphological tendency of the organism to a phthisical predisposition. The conclusion from further observation was that as a rule in the long type the beginning of the disease is more severe, the extension of the disease more stormy, the periods of remission shorter, that very frequently a reactivation of the process with a rapid and extensive invasion is noticeable, whereas in the short or brachy type, the beginning of the disease is insidious, progresses very slowly, the course of the disease is more favorable with long intervals of quiescence favoring more or less a healing tendency.

2. The contracted upper aperture of the chest,

the smallness of the first rib and the first ring as first pointed out by Hart and which may subsequently favor an apical tuberculosis, is frequently spoken of as an anomaly. It is not so much the contracted upper chest area, but rather the course followed by the apical bronchus, the bronchus apicalis posterior; this bronchus frequently runs parallel to the trachea. It brings about in this area a difficulty in the air excursion during breathing. It is well known that the apical excursion as a whole is somewhat faulty, this then lessens the free blood and lymph flow to the apical region, this favors blood stasis and a more ready deposition of the tubercle bacillus as well as other foreign bodies. It is also evident that this may manifest itself more readily the greater and longer the apical bronchus is and the longer the distance from the apices to the hilum. This has been especially observed in the asthenic where there is relatively a perceptible longer distance between the apex and the hilum and Birch-Hirschfeld has early pointed out that the topography of the apical bronchus as a physical cause, a faulty respiratory functioning of the contiguous portion of the right lung, greatly favors the deposition of the entering bacilli.

3. Zilinski, on a great number of autopsies on tuberculous bodies, found many bony anomalies to which he attributes the cause of tuberculous disease. Most were signs of inherited changes, of body disturbances or development. He mentions the following abnormalities found on tuberculous cadavers. On the skull deep depressions along the lamdoidal sutures, concavity of the small fontanel, frequent Wormian bones, ossiculæ Wormiana, abnormal length of the transverse processes of the lower thoracic or upper lumbar vertebrae, projection of the spinous processes of the first thoracic vertebra, simulating a prominence or spondylitis, thickening of the end of the ribs, a rickety rosary, frequent doubling of the sixth or seventh rib usually on the left side, bifurcation or fenestration of the xyphoid process, a tenth floating rib, the Stiller phenomenon, and a lack of ossification of the epiphysis, particularly of the lower extremities. The long hands observed in some tuberculous individuals is considered by many phthisiotherapeutists a sign of degenerative changes, and Polanski's observations are also interesting. He

found in ninety-four tuberculous men and forty-five women, a total of one hundred and thirty-nine, a flat chest in fifty-eight, biacanthia in forty-nine, very long hands in twenty-six and long heads in twenty-four. In ninety non-tuberculous male and female, biacanthia in eighteen, long heads in fourteen and long hands in eight. He also frequently found perforation of the xyphoid cartilage, tenth floating rib, promontoria of the lower spine, etc.

To this skeletal group may be added such other bony anomalies mentioned by clinicians as being perhaps related to tuberculous disease. The cervical ribs frequently found in scrawny individuals, a sixth lumbar or sacral vertebra most often a sacral, a contracted fifth finger or unusually long fingers, the disproportional development in the length of the upper or the lower extremities and perhaps structural anomalies occasionally observed in the teeth, disproportional numbers, faulty eruptions, etc.

The abnormalities of the scapulae should also be mentioned here. The vertical border of the scapula, in the normal is slightly convex, yet in adult life this border may assume any shape, convex, concave, scaphoid, straight, convex-sigmoid, wave-like, etc. This edge, which in adult life is subject to various changes in contour, is supposed to be brought about by the rhomboideus major muscle. However, may it not be considered a constitutional anomaly and if so, is it found more frequently in the tuberculous than in non-tuberculous individuals?

Other degenerative changes or bony abnormalities usually noted by clinicians may be mentioned here—scoliosis and kyphosis, perhaps gibbus, drooping of the shoulder on the involved side, conspicuous and prominent Ludvig's angle, anomalies of the clavicle referred to as the clavicular phenomenon, visible bony retraction and immobilization of the involved area, the epigastric or subcostal bony angle, trophic changes about the finger nails and clubbing of the fingers, high vault of the roof of the mouth, etc., may all belong to this category.

Second—The abnormalities observed on internal organs (not osteal) which may point to tuberculous disease. Signs of degenerative changes of some of the internal organs. The utilization of this fact in comparing it to various diseases was first described by Rokitsky in 1841.

In his doctrine of the habitus phthisicus he defined the tendency to tuberculosis from an anatomical viewpoint. He recognized a poorly developed musculature, a small heart, a phthisical condition of the chest, viz., a small thorax, lessened depth and an excessive length and in comparison with this, the lungs are abnormally large. Benecke by comparative weighing and by measurements of the various organs of the body finds that in the tuberculous the lungs are usually large, the heart small, the intestines also small and small arterial vessels and the pulmonary artery when compared with the ascending aorta is smaller and Brehmer, a close observer, describes anatomically the long chest and the small heart in the phthisical. He calls particular attention to a lessened functioning of the small heart, the relatively small arteries and that by means of such degenerative changes a resulting lessened nourishment of the lungs, predisposition to tuberculous disease is established. Hart notes the following examples: The hypoplastic or small heart, small aorta, enteroptosis, funnel shaped or excessively long appendix, long flabby tubes, tenth floating rib, horseshoe kidney or absence of a kidney, usually the right, and Zilinski points out that analogous to the skeletal disturbances noted above and what seems to show a faulty development that many of the internal organs are similarly affected, like an absence of the middle lobe of the right lung, a hypoplastic heart, thin vessels with paper-like walls (aorta papyracea), bifurcation of the aorta as high as the second or third lumbar vertebra, liver irregularities like hepar lobatum, numerous lobes produced by deep fissures, abnormal length of the right lobe of the liver, horseshoe kidney, occasionally an absence of one kidney, usually the right, absence of a kidney pelvis in which instance numerous ureters run together; abnormally long ureters; spleen occasionally fissured and nodular, fetal position of the stomach, abnormal length of the appendix or a funnel shaped condition, patency of the inguinal canal and malformation of the colon and its appendages. All these investigators have pointed out that hypoplasia of the vascular system was a most important predisposing factor, a fact early pointed out by Virchow.

The number of degenerative changes observed in the internal organs is less than those demon-

strable on the external body and from this many observers conclude that the former are due to inherited disturbances which predispose more readily to tuberculous disease.

Third—Abnormalities noticeable on the body as a whole, usually on inspection. By far the greater number of abnormalities which may point to tuberculous disease are those found on the external integument. Rosolima observes that in individuals of the so-called phthisical constitution or in those from tuberculous families that a large percentage show anomalies of the external ear such as an irregular development of the upper lobes and Kwiatowski that in men suffering from pulmonary tuberculosis frequently a heavy head of hair with the female type of hair at the genitalia and some French authors, Fournier, Ricochon, et al., have pointed out a disharmony of the hair as a constant anomaly such as a combination of dark brown hair with a bright red moustache, this was particularly noticeable in tuberculous enteritis and as further specific signs in the tuberculous they point to the asymmetry of the face, faulty development of the upper lip, the hair on the forehead, eyebrows and eyelashes, vault of the mouth, the nasal openings, retraction of the nipples in women, illy developed navel, phimosis atresia, undescended testicle, rupture, etc. Amongst the greater number of abnormalities enumerated, the most frequent and the most pathognomic are in men, the female type of the hairy growth about the genitalia. Schmidt also points to a faulty development as a sign of a constitutional anomaly and in this category he places supernumerary nipples, naevi, meeting of the eyelashes, unilateral facial paresis and Herbert points to unilateral anomalies as usual symptoms of a diseased lung. Tuberculosis of the larynx is usually found on the involved side and the pupil is frequently found dilated on the affected side, a lessened pigmentation of the areola of the mammae on the diseased side, a disproportionment of the mamma being smaller over the diseased lung, the nipple being also smaller and acne vulgaris, if present, is always more pronounced over the involved side as well as atrophy or a lessened hair growth. Trophic changes may also be noticeable in the male nipple and also found on the side of the diseased apex and all these unilateral anomalies are due to a faulty development or degenerative changes in

the respected lung involved. The cause of all these unilateral disturbances is, in all probability, due to degenerative changes in the trophic fibres of the nerves.

Polymastia and Tuberculosis. Some years ago a paper appeared in the *London Lancet* from the pen of Dr. Teizo Iwai, a physician in charge of the Japanese Red Cross Hospital at Tokai, reporting his observations on 6,274 physical examinations of the chest, both tuberculous and non-tuberculous. He reports that many individuals suffering from pulmonary or pleural disease or in many cases of only suspected disease, that a positive relationship between polymastia and tuberculosis exist. He arrived at the following deductions: That 1, when we compare the patients suffering from tuberculosis with those who do not, the cases of polymastia are found in greater number among the former and 2, those who have polymastia are more liable to be affected by tuberculosis than those who have not.

In all of the 6,274 patients examined he found 315 cases of polymastia or 5.02%. According to sex, 3,665 males he found 120 cases or 3.27% and females, 2,609, 193 cases of polymastia or 7.58%. In 1,449 tuberculous individuals he found 119 with supernumerary nipples or accessory mammary glands or 8.21% compared with 196 cases in 4,825 non-tuberculous patients or 4.06%. In the 315 cases of polymastia out of the total number examined, 6,274 patients, he found 119 in tuberculous or suspected tuberculous or 37.77%. He observed that cases of polymastia are found more among the tuberculous, especially in the pulmonary form, than among the non-tuberculous, many times as numerous, and those who have polymastia are more liable to be affected by tuberculosis than those who have not a difference of more than 15%. Dr. Squire, also in the *Lancet*, makes this statement: "Though I have not infrequently noticed supernumerary nipples in healthy persons, I do believe that the proportion of tuberculous patients showing this peculiarity (abnormality or anomaly) is greater than amongst the healthy I have examined."

From these observations it may be apparent that in individuals in whom many anomalies are observed that there exists in all probability a greater predisposition to the development of

tuberculous disease and again in all probability that the more anomalies of development exist in the body, the earlier and the more rapid after infection does active disease follow. However, we must always bear in mind that no specific sign, ever so plainly demonstrable, is in itself insufficient to point to tuberculous disease in an individual because all of these signs are found in both the tuberculous and the non-tuberculous, but these signs of degenerative changes are found more often in the former than in the latter. Polanski, in one hundred and fourteen autopsies on tuberculous cadavers, found sixty times degenerative changes in the lungs and in other organs.

CONCLUSIONS

First, there are no indisputable signs of an anomaly in any individual which point to a tuberculous disease because similar signs are very frequently found in non-tuberculous subjects.

Second, constitutional anomalies, both the acquired as well as the congenital peculiarities of a given individual or a combination of all, are dependent upon a heightened disposition.

Third, anomalies when grouped together are usually found to be very numerous. However, we must always bear in mind that individuals spoken of as disposed to tuberculous disease or those who may be so classified are in the greater number instances already tuberculously diseased.

Fourth, the close contact in childhood with the bacilli carriers may be an important factor in the etiology of tuberculous disease. However, it is not the only one and may even not be the most important. From long observation we know that in the greater number of cases of tuberculous disease an inherited constitutional disposition or tendency is necessary to bring about the disorder and then on the other hand, paradoxical as it may seem, this inherited disposition in the individual often gives the power to resist the invasion and implantation of the bacillus, and

Fifth, as anatomical changes, brought about by the presence of the tubercle bacillus in the various tissues and organs of the human body, are not transmitted to the offspring, we must assume that there must be an inherited or congenital property in the body which may favor a heightened disposition to tuberculous disease. This may be dependent upon anatomical or functional anomalies and these various disposing factors

may be due to changes in the thorax, to constitutional anomalies, circulatory disturbances, different diathetic changes, changes in the body lymphatics and vagatonic conditions, etc.

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IMPOTENCY AS SEEN BY THE UROLOGIST

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Impotency as it occurs in a cross section of a urological practice probably is quite different from that encountered in general medicine or any other specialty. It is likely, too, that more instances and varieties of partial impotency are discovered in this particular branch of medicine, since the preponderance of those consulting the urologist does so with a distinctly genito-urinary complaint.

In discussing the causative factors of impotency one invariably thinks first of the word psychic. This probably is due to early medical training or associations; as a matter of fact, purely psychical impotency is rarely encountered by one who strictly limits his practice to urology. So much so, that the urologist sometimes wonders if the term psychic impotency is not greatly overplayed; and many instances of impotency are dubbed psychic when as a matter of fact they have real demonstrable pathological changes within the genito-urinary organs. This statement is made not to imply that psychic impotency is a medical curiosity or does not occur at all, (as I am told by psychiatrists that the reverse is true) but rather to stimulate a more diligent search for pathological lesions, whether they be gross or minor. One might be suffering with this complaint in which the prostate is practically normal in size but sufficiently abnormal in consistency or contour to be detected by the expert. It sometimes happens that too

much stress is placed in the microscopic picture at the expense of a careful clinical examination. One must remember that in certain types of prostatitides, few pus cells will present themselves in the expressed secretion, when a careful digital examination of the prostate and seminal vesicles will elicit inflammatory changes in one or both of these organs.

At this time, it is well to relate that due to the intimate anatomical relationship of the prostate and seminal vesicles, that one of these structures is rarely if ever involved in an inflammatory process that the other is not involved to a lesser degree, one or the other predominating, so that in reality the condition should be termed a prostatic-vesiculitis so urgently stressed by the late Dr. Belfield. However, for brevity's sake, one or the other is generally designated, depending upon which predominates in the particular process.

In speaking of the expressed secretions of the prostate, it is certainly most important to remember that many cases of rather inactive chronic prostatitis is converted into an acute prostatitis with its accompanying train of annoying sequelae as, chills, fever, frequency, difficulty and dysuria, by too vigorous massage, in fact a prostatic abscess is not a rare concomitant.

The exertion of a tremendous force and pressure is certainly carried out much too often for the good of those who suffer from a prostatic-vesiculitis. I seriously question the aid one derives from the examination of the secretion if the examiner is not sufficiently proficient to determine a pathological change by digital examination. One would hardly expect to find much evidence in the expressed secretions of an individual with chronic interstitial prostatitis or a peri-prostatitis. These conditions usually are associated together in what is termed a pan-inflammation of the prostate and seminal vesicles, these structures being matted together by a fibrosis.

I am placing great stress upon prostatitis, since it is the outstanding cause of impotency and because its presence not alone in impotency but even more especially in other conditions, is very often overlooked. A few colleagues in urology are even guilty of overlooking certain cases because of the sparsely scattered pus cells in the prostatic secretion.

Seminal vesiculitis is another of the great triad of causes of this syndrome; but as stated previously, is practically always associated with a prostatitis. However, in this particular the vesicles stand out as the primary or disturbing factor. These are the offending structures in that relatively large class of individuals who give no venereal history but rather one of improper sexual hygiene. Particularly is it noted that victims of impotency who still are in their twenties or early manhood suffer from a vesiculitis and quite often the atonic variety of seminal vesiculitis predominates. This type is occasionally seen in those who have had urethral strictures for a number of years.

The atonic variety is characterized by the enormous size, the readily detectable fluid content which is rather difficult to express in its entirety, and the minimum number of pus cells in the expressed secretion. This is one of the most intractable types, so far as treatment is concerned. Not infrequently two or three months are required to effect relief. In fact this time element is the rule rather than the exception. Instances requiring from three to six months for complete recovery are not rare.

Stricture of the urethra is another primary cause as encountered by the urologist, and as such it is decidedly necessary to be alert to the fact that a stricture does not have to be of filiform size, but may be of a goodly sized caliber and still cause obstructive or inflammatory changes. As an example, it is only necessary to say that many individuals with strictures calibrated in the thirties have a constant mucopurulent discharge, showing that a persistent inflammatory state evolves around and behind the strictured area; so much so that a chronic prostatitis is a constant concomitant of strictures of the urethra. As a mild chronic posterior urethritis occurs with a stricture, so does a prostatitis develop from the latter. The constant inflammation and irritability about the verumontanum results in an impotency. Often the early stages is an ejaculatory precox caused by irritability which if allowed to linger without proper attention eventually ends as a complete impotency.

A round cell infiltration or a fibrosis frequently develops from the prolonged irritation and inflammation so that a condition of fibrosis

exists in the deep urethra. This, of course, is a late development. Rarely fibrosis of the deep urethra is encountered in youths in whom it is difficult to ascribe it to an inflammatory reaction, possibly being congenital just as fibrosis and stenosis of a congenital nature is encountered in other parts of the body. These may present themselves with sexual complaints and be free of urinary complaints or physical findings other than the fibrosis.

Conclusions:

1. The trend of sexual impotence to the urologist is predominately organic in origin.

2. The psychic type apparently predominates in the psychiatrist's practice.

3. The outstanding causes are prostatitis, seminal vesiculitis, and urethral strictures.

4. Less frequently encountered are those with congenital anomalies.

5. Cases occurring in general debilitating diseases are well known.

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POST-OPERATIVE WOUND INFECTIONS ("STITCH" ABSCESS): A SUMMARY OF POSSIBLE ETIOLOGICAL FACTORS*

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I have arranged for convenience of discussion the following classification of surgical wounds which may show post-operative infection:

1. Wounds made through obviously infected tissue, such as boils, carbuncles, "Felon's" which are "pointing."

2. Wounds made through apparently healthy tissue, but opening into frankly infected regions: Appendiceal abscesses, tendon sheath infections (not "pointing"), para-nephritic abscesses thoracic empyemata, etc.

3. Wounds made through apparently healthy tissue for surgical treatment or removal of lesions which are on an infective basis, but which at the time do not show evidence of free infective material: Cholecystectomy for chronic cholecystitis, appendectomy during an interval between acute attacks, salpingectomy for chronic salpingitis.

4. Wounds made through apparently healthy tissue for the purpose of performing surgery on structures of a recognized non-infective nature: Herniorrhaphy, hysterectomy for fibro-myomata, carcinoma of the breast, uterine suspensions.

The cause of wound infection in Nos. 1 and 2 is obvious; infective material is either actually present in the tissue incised (1), or pus immediately pours over the wound margins (2). In No. 3, it is possible that infective material from within has come into direct contact with wound margins; an early appendicitis will often have a few drams of straw-colored fluid about the appendix; this flows out over the wound margins and may implant micro-organisms. In dealing with the stump of an "interval" appendix it is possible to contaminate the field. The same holds with cholecystectomy—possible contamination from the stump of the cystic duct.

The following is an interesting example of probable wound contamination from within: A case, wrongly diagnosed "Acute Empyema of the Gall Bladder" was opened in the gall bladder region. The gall bladder, on inspection and palpation, seemed normal. A hand was passed into the pelvis and encountered a large mass in the tubo-ovarian region having all of the characteristics, on palpation, of a tubo-ovarian abscess. The hand was instantly withdrawn. There was no visible infective matter on the glove. The wound was closed without drainage and the abscess drained vaginally. By the third day the upper wound showed signs of active infection, some stitches were removed, and a large amount of foul smelling pus was evacuated. Undoubtedly the mere touching of the gloved hand to the diseased tube and then withdrawing it through the clean wound caused the contamination of the margins producing a large subcutaneous abscess.

The problem then seems to narrow down largely to causes of post operative infection of wounds in No. 4 class.

POSSIBLE METHODS OF INFECTION

From Without: Dust particles circulating in the operating room. It is well known that petri dishes of ordinary culture media have been exposed in operating rooms for only three minutes and cultures of pyogenic organisms obtained. While performing an "exploratory laparotomy" in which no pathological lesion was found, un-

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less it was the proverbial "chronic appendix," which was removed, some one kicked the stand of the lamp which stood at the side of the table, the lamp itself extending over the operative field. Some dust particles were observed to fall from the lamp on to the operative field. The patient developed a general peritonitis and died. Cultures were made from the metal parts of the lamp and pure growths of staphylococci were recovered. This is not proof, perhaps not even convincing, but it is at least suggestive.

Gauze, linens and other operating room paraphernalia may be septic due to possible faulty sterilization (Dr. Kegel's work on hospital sterilizers brought this out), or they may have become contaminated in some unknown way after thorough sterilization. There was an example of this in one of the large charity hospitals several years ago. There had been more than the usual number of infected wounds. On investigation it developed that it was not confined to one or two services, but that all were having them in about equal number. Further investigation brought out the fact that, irrespective of which one of the staff performed the operation, the infections were coming largely from one operating room. After some further "detecting" it was discovered that a scrub woman who cared for that particular room would remove a sterile towel from a drum, unfold it, sweep on to it the finer dust and refuse, shake it into the refuse can, carefully refold the towel and *replace it in the drum!*

It is possible that suture material at times is not sterile. There may be slips in asepsis in adjusting gloves or gowns. A needle prick in a glove during an operation is a potent source of infection. Regardless of how carefully the surgeon's hands are scrubbed and prepared, confined in rubber gloves they will perspire more or less. It is conceivable that pyogenic organisms, inhabiting the depths of the sweat glands of the hands are washed out by the perspiration into the glove finger tips; from here it can readily escape through a needle puncture into the wound and so be a definite cause for infection of that wound. The peritoneum can usually take care of whatever of infection reaches the abdominal cavity in this way; the abdominal wall, especially the subcutaneous layer, not so easily and so we may have the "infected post-

operative wound." Breathing, talking, sneezing, or coughing over the field or near it could be factors.

The Wound Itself: Exposed skin; repeated "skidding" with retractors or hands from skin surface into the wound; wiping with gauze sponges from skin into the wound and using the same sponge more than once. Foreign bodies, sterile in themselves, but acting as irritants to lower local resistance of tissue; cat-gut ligatures, sediment from sterilizers, glove powder. Dr. De Lee frequently emphasized this point in his lectures and urged all surgeons to carefully wash off the powder from the outside of the gloves after donning them before beginning work.

Gauze dressings applied to wound surfaces, as a confrere recently remarked to me, are not Berkefeld filters. It is surely possible for bacteria to reach a wound through an ordinary surgical gauze dressing. However, wounds are practically always sealed by blood crust within an hour after closure. During my internship some German surgeon published a series of cases in which no post operative dressings were applied. We thought that if the Germans could do this we could also, so sent approximately one hundred cases to the wards from the operating rooms without a dressing of any kind. Our percentage of wound infections was no larger in this series than in our dressed cases.

Hemogenous Infections: This brings up the entire subject of focal infections with metastasis to more or less distant regions where resistance has been lowered by trauma, disease, fatigue, or what-not. I will not enter into this except to mention an editorial which appeared in the *Journal A. M. A.* of Feb. 1, 1930, referring to some original experimental work done by Sager and Nickel (*Arch. Surg.* Dec., 1929). These experimentors produced abscesses by the subcutaneous injection of silver nitrate. They aspirated these abscesses and found them to be sterile. They then injected easily recognized bacteria into the blood stream, following which these abscesses became secondarily infected with the identical organism injected. Contamination was practically ruled out because of the prior aspiration. In their series of experiments these areas frequently showed infection occurring even after the blood cultures had again become sterile. Their conclusions were that surgical procedure

lowered resistance of these areas and so attracted micro-organisms circulating in the blood stream.

Bacteria Planted by the Operator at the Time of Operation: In spite of the fact that the skin surface has been prepared by shaving, thorough scrubbing and washing, and by the application of one or more of the several "antiseptic" solutions in vogue, there are still bacteria present in the deep crypts of the skin, the hair follicles, sebaceous and sweat glands. An entirely sterile knife is grasped by an equally sterile gloved hand and forced through these pockets, picking up a few organisms and planting them in the fatty layer. The skin cutting knife is discarded and sterile towels are carefully clamped to the wound margins before the deeper structures are molested. Even so the *inoculation has already been made!*

Now, added to this are the following factors:

1. Lowered general resistance, by the patient's immediate illness or at least by the surgical procedure and anesthetic;
2. lowered local resistance by the trauma of the incision, increased perhaps by infiltration of a local anesthetic solution;
3. the implanting of foreign bodies which act as mechanical irritants—absolutely sterile cat-gut ligatures. In individuals having a deep layer of subcutaneous fat with many bleeding points, this is especially true, as is evidenced by a much higher percentage of so-called "stitch abscesses" in this type of patient. This layer has the lowest resistance to infection.
4. Exposure, handling, length of operation, retractor pressure, all play a part in lowering the resistance of this tissue.
5. In closure of surgical wounds surfaces are not as accurately approximated as we sometimes suppose; there is more or less oozing into dead spaces with resulting small hematomata—excellent culture media for these implanted organisms.

It is my personal opinion, not based on experimental data, but merely on clinical observation, that post-operative wound infections—so-called "stitch abscesses"—while it is conceivable that they can be caused, and even in a small percentage of cases, may be caused, by an agent from without, or by the blood stream, are actually caused, in by far the greatest number of cases, in the manner I have last described; that the organisms are picked up in the deeper skin

structures and planted into the subcutaneous fat; there they fight out the battle with the resisting powers of the patient; when the patient loses, the result is—STITCH ABSCESS.

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THE PRESERVATION OF THE PARATHYROIDS IN GOITER SURGERY*

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The occurrence of a specific form of tetany following total extirpation of the parathyroids is now established both clinically and experimentally. The evidence for this statement is so extensive that we will not take the time to attempt to cover it, since this has been done.¹ As a consequence to this fact, the protection of these glandules has become one of the necessities of a correct thyroid surgery.

It is to be remembered, however, in this connection, that tetany may follow operations upon other parts of the body, quite distant from the parathyroid region. It has been reported, for example, subsequent to the correction of hallux valgus, herniotomy and resection of the pylorus.² Recent experimental work has demonstrated, in addition, that there is a form of tetany associated with the demineralization following the transperitoneal perfusion of distilled water. This is accompanied by a definite loss of chlorides from the tissues and an hypochloremia.³ Moreover, we have seen, experimentally, the blood calcium at one-third its normal level—as low as 3 milligrams per cent, without tetany.⁴ These facts are presented simply to show that the tetany problem is far from its full solution. That there exists, however, a definite *tetania parathyreoopriva* following the removal of all, or nearly all, of the parathyroids is, of course, generally accepted.

The prevention of parathyroid tetany subsequent to goiter surgery depends particularly upon a consideration of the anatomy of the parathyroids. Not only must a sufficient number of the glandules be spared, but to those remaining must be preserved an intact blood supply. The conscious preservation of a sufficient

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number of the glandules, as well as their blood supply, calls for the knowledge of a number of factors, which we will discuss in the following order before considering their clinical application: (a) The number of glands which are present; (b) Their color, shape and size; (c) The position of the glands; (d) The direct blood supply; (e) The collateral blood supply.

Number of Glands Present. The parathyroid glands are of entodermal origin and develop from the lateral portions of the third and fourth pharyngeal pouches. There are ordinarily four separate anlagen. From these, cords of cells migrate into the region of the hypopharynx, and later, with the thyroid, into the neck.⁵ It is evident that with four distinct origins we may find occasionally an increased number of parathyroid glandules due to the separation of original anlagen. It is likewise evident that in the migration, the four small, separate glandules may readily take different positions than those ordinarily assumed. Authorities have differed considerably in the number of parathyroid glands which they have found in dissections on cadavers.^{2, 6} The differences in their results may be interpreted in two ways, however. First, there may have been fewer glands present than normal, and, second, the search may not have been sufficiently extensive. It is difficult in the cadaver to identify the parathyroid glands with any degree of certainty.¹² Grossly they may be confused with accessory thyroid glands, with lymph glands,⁷ with small lobules of fat, or even with hemolymph glands⁸. The only certain way of identifying the parathyroid glands is by means of microscopic sections. In a search recently made on twelve cadavers, I found four parathyroids in ten, five parathyroids in one and three parathyroids in one. These were all identified and proved to be parathyroids by means of frozen sections.¹² As a rule four glands are found; according to Klose, in about 80 per cent. of the bodies examined.² The principal variation, however, is toward a lesser number.

Color, Shape and Size. The color of the parathyroid glands is of importance in their identification, particularly during goiter surgery. It is dependent upon their content of blood and fat. In the usual adult patient with thyrotoxicosis either with a diffuse hyperplastic or a nodular goiter, the parathyroids glands are of a yellow-

ish brown color. In older individuals, or those who are emaciated, they may become of a more pinkish tint. In a dry field, it is possible to recognize them in a considerable number of cases.

The shape of the parathyroids is variable. Ordinarily they are from three to ten millimeters in length, two to four millimeters in breadth and one to four millimeters in thickness. They are usually elongated or ovoid in shape, those lying between the thyroid gland and the enclosed cervical viscera being as a rule flattened. Larger and smaller glands, of course, exist. The shape and color, or even the position, are not of sufficient value to enable one to identify the glands with any great degree of certainty. For that reason, for any assurance in transplanting them, one should make a frozen section, even with the understanding that a part of the valuable tissue must be sacrificed to do so. Small accessory thyroid glands are frequently confused with the parathyroids. These, as a rule, however, are darker in color, larger, lobulated and attached to the thyroid capsule. The lymph glands are usually lighter, firmer, and more definitely spheroid or ovoid in shape. Both lymph glands and parathyroids have a single penetrating artery, which is confusing. Fat lobules may occasionally resemble parathyroids, particularly when the fat is in an undeveloped state and the lobules of a brownish color. The prevertebral lymph glands resemble parathyroids, and the hemolymph glands resemble them even more closely, owing to their vascularity.⁸ Finally, if a glandule is removed and transplanted without microscopic confirmation that it is a parathyroid, one cannot be certain that a true transplantation has been done, either autogenous or heterogenous.

Position of the Glands. The parathyroids lie, as a rule, in a broad zone along the postero-medial surface of the thyroid lobes and commonly between them and the enclosed cervical viscera. This "danger zone" is well recognized and thanks also to the position of the adjacent recurrent nerves, a sufficient number of parathyroids is usually spared in subtotal resections of the lobes. However, variations from this usual position occur and it is particularly these anterior lying aberrant glandules which are likely to be removed. Aberrant parathyroids, though known for years,² have recently received renewed

attention, particularly in relation to resected thyroid lobes.^{9, 10} Wellbrock¹¹ found that about 8 per cent. of 1,056 glands removed at the Mayo Clinic revealed parathyroids upon careful investigation. It thus becomes of increasing importance to spare as many glandules as possible, and to maintain an intact blood supply to those which remain.

The majority of the parathyroids, however, lie between the thyroid fascia and the thyroid capsule within the thyroid space,¹³ in a zone between the thyroid, trachea and esophagus. In this situation they are in intimate relationship with the anastomotic vessels between the thyroid arteries and those of the respiratory and digestive tubes. Collateral vessels between these structures and their enveloping fasciae pass through this zone and the parathyroid arteries may even arise from them.^{6, 14, 15} A knowledge of this position and relationship, recognized by Halsted¹⁶ on the basis of McCallum's dissections and designated by de Quervain the "*danger zone*," is of manifest importance in preserving the parathyroids as well as their collateral blood supply during subtotal thyroidectomy.

The parathyroids lie, as a rule, free within this thyroid space. It is very rare to find one embedded within the thyroid substance or even within the thyroid capsule. They may occur outside this space particularly below the lower pole. The majority of the glands lie along the lower three-fourths of the lobes and are more commonly below the lower pole than above the upper. Due to their development and subsequent migration, they may be found anywhere along the course of the developing thyroid. A striking example of aberrant parathyroids is to be found in a case reported by Asch.¹⁷ This patient had a lingual goiter which was removed on account of its interference with respiration and deglutition. Not only myxedema but even parathyroid tetany followed the extirpation. A careful examination of the specimen revealed the presence of parathyroids within the tissue excised from the base of the tongue. Parathyroids likewise sometimes occur within the thorax,²⁸ or at the tip of the pyramidal lobe.

The Direct Blood Supply. Since the studies of Welsh¹⁸ and later of Halsted and Evans,¹⁴ which have been abundantly confirmed, it has been generally recognized that the parathyroids

receive their blood supply principally from the inferior thyroid arteries. From this anatomical fact it would seem that these arteries should be carefully preserved during operations upon the thyroid gland. This view has actually been expressed, more recently by Dunhill.¹⁹ However, as a matter of clinical experience, bilateral ligation of the inferior thyroid arteries^{24, 29} or, for that matter, of all four thyroid arteries^{20, 22} is but rarely followed by tetany.^{21, 23, 25}

The parathyroids receive a characteristic single artery of variable length which is one of the distinguishing features in their identification. This arises commonly from a branch of the inferior thyroid artery, frequently just after the trunk branches to ramify within the capsule of the thyroid gland. In excised specimens parathyroids may sometimes be identified by following along the course of these larger branches. Occasionally the slender artery may arise from a branch of the superior thyroid artery, as figured by Ginsberg.⁷ Frequently it arises from an anastomotic branch, the "*channel*" of Halsted, connecting the superior with the inferior thyroid artery on the posterior or postero-lateral surface of the thyroid lobe. There are no visible anastomoses between the gland sheath and the surrounding connective tissue. The parathyroid arteries may arise from any of the terminal branches of either of the two thyroid arteries. They may arise from the inferior laryngeal artery, from the esophageal arteries or from those destined to go to the trachea or pharynx.

The Collateral Blood Supply. We have recently studied the blood supply to the human parathyroids, particularly the collateral blood supply, in a series of twenty-five cadavers immediately preceding necropsy.¹² The following is a summary of that study. An especially devised injection apparatus was employed.²⁵ A carmine-gelatin mass was injected into the lower thoracic aorta, below the origin of the bronchial and esophageal arteries, at a pressure of 150 mm. of mercury. By preliminary ligation of unnecessary arteries leading away from the neck, the injection was localized largely to the thyroid area. Abundant anastomoses were demonstrated between the thyroid arteries, especially the inferior, and the arteries of the larynx, pharynx, trachea, esophagus and their surrounding muscles and fasciae. Connecting vessels may be

readily traced to these structures. Terminal branches of both thyroid arteries anastomose across the isthmus, and behind the isthmus with tracheal vessels. The larger collateral vessels below, from the inferior arteries, are the inferior laryngeal, the esophageal and tracheal branches, and those to the isthmus. Above, the collaterals arising from the superior arteries, are the superior laryngeal, pharyngeal and muscular branches, and the cricothyroid arteries. There is also a free anastomosis between the two thyroid arteries, particularly on the posterior surface of the gland, but to a certain extent also within its substance.

After preliminary ligation of both inferior thyroid arteries, the presence of carmine gelatin was demonstrated in the parathyroids after injections, by means of frozen sections. After ligation of both inferior thyroid arteries, together with the anterior branches of both superior thyroid arteries, the injection mass was demonstrated in the parathyroids by the same method. In three bodies all four arterial trunks were ligated preliminary to the injections. The mixture was subsequently demonstrated in the vascular spaces of the parathyroids. The fascial connections posteriorly between the thyroid and the trachea and esophagus, particularly in the region of the isthmus and the medial borders of both lobes, are important in maintaining this collateral blood supply.

In the Surgical Clinic in Berne it is a frequent procedure to ligate both inferior thyroid arteries as a hemostatic measure preliminary to a thyroidectomy^{24, 25}. In many instances the anterior branches of the superior arteries are ligated at the same time. In less than 1 per cent. of the cases all four of the arterial trunks are ligated. Since tetany does not follow these procedures it is apparent, from extensive clinical evidence, that the collateral blood supply to the parathyroids is ample. The demonstration of injection mixture in the parathyroid glands following the preliminary ligation of both inferior thyroid arteries, and even of all four thyroid arteries, substantiates this conclusion and places it on a firm experimental basis.¹²

Clinical Application. From studies upon the cadaver and at the operating table which we have made, as well as after consideration of the work of others, we wish to present the following

principles of technique which appear to assure the maximum chance of preserving the parathyroids in goiter surgery. Since they usually lie in the space between the thyroid fascia and the thyroid capsule, when this space is entered the operator should be careful to strip back the thyroid fascia in exposing the anterior and lateral portions of the thyroid lobes. When the anterior portion of the lobe is sufficiently exposed, the remainder of the excision should be made intracapsularly, preferably after a method similar to that which Terry and Searls have recently outlined,²⁶ in order to preserve the entire lateral and posterior capsule and particularly the thyroid fascia and space content. The superior thyroid artery should be ligated close to the superior pole, in order to preserve the muscular and visceral branches (pharyngeal, laryngeal and cricothyroid), particularly those arteries which maintain the collateral supply to the parathyroids even when the four trunks are ligated. The inferior thyroid arteries should be ligated outside the thyroid fascia and capsule, preferably after the method outlined by de Quervain,²⁴ in order to avoid injuring the "danger zone" and direct branches to parathyroids. In the resection of the lobes, the fascia and capsule about the inferior pole should be particularly preserved. It is possible to do this. Also it is advisable to leave a thin layer of isthmus covering the trachea, since here there is an evident collateral supply. In the preservation of the finer connecting branches which form the important collateral supply to the parathyroids, it is necessary to refrain from excessive traction upon the thyroid gland during its luxation and resection. Immoderate traction can result in the destruction of the finer collateral vessels between the medial surfaces of the lateral lobes and the trachea and esophagus. Since it has been shown that parathyroids are frequently removed in resections of the thyroid gland, Lahey²⁷ has recommended that these be identified and reimplanted, preferably in the sterno-mastoid muscle.

If the collateral supply to the parathyroids is carefully preserved, we may with safety ligate all four thyroid arteries if necessary, the two superior arteries close at the superior pole and the two inferior arteries at the horizontal portion behind the carotids. The occurrence of parathyroid tetany following operations upon the

thyroid gland, in which these principles are followed, is very rare²⁵. In one hundred and twenty successive operations for goiter which I have performed, and which have been followed, I have had but one transient case of demonstrable tetany. This was in a patient with a circular goiter. In the luxation of the high superior pole and the posterior portion of the lateral lobes, which extended medially behind the trachea, there was presumably injury to the collateral blood supply of the parathyroids. The transient tetany lasted three days. It has recently recurred since the patient left the hospital.

SUMMARY

The preservation of the parathyroid glands in goiter surgery calls for a knowledge not only of their position but also of their blood supply. Four glands are ordinarily present, of a brownish-yellow color, and lying, as a rule, between the medial surface of the lateral lobes and the trachea and esophagus but more frequently toward the lower pole of the thyroid gland. Each receives an individual artery, usually arising from the inferior thyroid arteries or their branches. Through the branches from which they arise, there is an abundant collateral blood supply from the other thyroid arteries of the same and opposite sides, from the arteries of the pharynx and esophagus, from those of larynx and trachea, from surrounding muscular branches and from branches in the deep cervical fascia. The preservation of this collateral supply is best effected by leaving the posterior and medial capsule, as well as the posterior isthmus, *in situ* and avoiding tugging on the gland in the luxation necessary to subtotal resection. Aberrant parathyroids are best preserved by leaving behind so much of the lateral and inferior polar fascia and capsule as possible.

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DISCUSSION

Dr. Lindon Seed, Chicago: Parathyroid tetany is one of the most serious complications following thyroidectomy. It is commonly thought that tetany is usually temporary but from my own observations, if the patient is followed over a number of years, there is a partial but permanent disability.

When an assistant to Dr. W. E. Sistrunk, I had an opportunity to see a series of cases in which four pole ligations were performed, usually in stages. These cases when they returned for thyroidectomy seemed to bleed more than the usual thyroidectomy. There was not a great deal of improvement from this procedure and there was no tetany. Dr. Curtis has shown that, apparently, interference with the four main vessels will not produce tetany, that the collateral supply is sufficient to carry on. He has called attention, however, to the fact one must preserve some of the collateral, of which the most important single source is the anastomotic branch between the inferior thyroid and the superior thyroid. Some surgeons destroy this branch in removing the entire gland above the level of the cricoid. Such an operative procedure might result in tetany if both inferior thyroids were ligated simultaneously. Sometimes in applying a single principle in another surgeon's operation to one's own operation, unless he takes into consideration all the other factors, he can get into a great deal of trouble. One surgeon who leaves the upper part of the gland or who leaves a large portion of the gland can ligate the inferior thyroid with impunity, while another one will produce tetany.

No one can be too familiar with the position of the parathyroids. They are difficult to see during the course of an operation and can be differentiated from thymus, accessory thyroid or a lymph gland only by microscopy. Dr. Curtis' demonstration of their position and more important, the fact that the inferior thyroids can be ligated without necessarily causing tetany is certainly of considerable value in the operating room.

THE WASSERMANN REACTION IN ASTHMA

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During the course of the last ten years much evidence has accumulated which indicates that non-specific factors play an important part in the treatment of syphilis, probably as important, from the viewpoint of practical therapeutics as are specific chemo-therapeutic agents. Indeed, there is a growing conviction that our specific chemo-therapeutic agents act largely because of a non-specific effect on the tissues, and the tissues in turn react to the virus.

There is no doubt that the treatment of paresis by means of malarial infection has done much to emphasize this point of view. As a matter of fact non-specific therapy in the earlier stages of syphilis frequently gives equally striking results.

Bering¹ states that early syphilis, especially if refractive to treatment by arsenic and mercury should be treated with malaria. He states that the malaria cure when applied to early lues is a prophylactic against subsequent neurosyphilis. Memmesheimer² has used the malaria treatment in early syphilis with great success. Kerl³ also speaks well of the use of malaria therapy in early syphilis. Herrold⁴ has used gonococcus protein intra-muscularly plus neocarsphenamine intravenously in "Wassermann fast" individuals with gratifying results. Weirauk⁵ has found that syphilitic skin lesions showed marked improvement or even regression following milk injections. Greenbaum and Wright⁶ have shown that non-specific protein therapy results in partial or complete involution of secondary or tertiary lesions. Mulzer⁷ has shown that persons with a strongly positive Wassermann reaction are markedly benefited by malaria therapy. Finger⁸ is a strong advocate of the malaria-salvarsan treatment of all forms of syphilis. Bering⁹ does a cisterna puncture at the end of the second year of treatment. If the cerebrospinal fluid shows evidence of syphilis, he immediately institutes malarial treatment. He has been very successful in 460 cases.

In this country Engman of St. Louis has been particularly interested in non-specific therapy in syphilis, checking his results by means of quan-

titative Kahn tests. He has used a variety of non-specific methods either singly or combined and his results have been very interesting.

The methods used in non-specific therapy are varied. Almost every protein has had its day. Malaria, introduced by v. Jauregg, has been widely used. A few of the clinicians who have used malaria therapy are: Nonne,¹⁰ Hoff and Klauders,¹¹ Ebaugh,¹² Bering,¹³ Dreyfuss and Hanau,¹⁴ and O'Leary.¹⁵ Tuberculin, typhoid vaccines, milk proteins, organic sulphur compounds, "Transfusum," "Pyrifer," Ringer's solution, heat, cold, diathermy, ultra-violet light, x-ray and innumerable other agents have been used in non-specific therapy.

In the early days of non-specific therapy many explanations were advanced for the mechanism whereby the effects were produced. Wagner von Jauregg thought that the fever was an important factor, i. e., the heat produced. This, of course, may be an aid in the inactivation or destruction of the spirocete. Scherber¹⁶ and Kundratitz¹⁷ believed that there was a mobilization of the organisms into the blood stream after the injection of foreign protein, and concluded that the defences of the body took care of the destruction of these organisms after they had been ejected from their protected seclusion in this manner. Numerous other explanations which cannot be cited in this paper have been advanced. Recently, however, due to the application of exact quantitative methods to the study of the reaction after non-specific therapy, it has been shown that practically all of these "Reitzkörper" act in the same way. There are two phases to the reaction. Phase 1 is characterized by a fever; phase 2 by a reaction after the fever and a return to normal. The first state is characterized by an acidosis, the second state by an alkalosis. Jobling,¹⁸ Scully,¹⁹ and E. F. Müller²⁰ have shown that there is a leucocytosis following the injection of foreign protein. Camie and Calhoun²¹ demonstrated that this leucocytosis was accompanied by a myeloid tendency. Petersen has shown that the fibrinogen is increased, thereby decreasing the coagulation time. Jobling and Petersen²² have demonstrated the increase in proteolytic enzymes. Eggstein²³ indicated that there was an acidosis followed by an alkalosis. Barr and associates²⁴ have shown changes in the metabolic rate. Petersen²⁵ has

demonstrated that there is an increased permeability, followed by a decreased permeability. Mueller and Petersen²⁶ have shown the dominance of the sympathetic. Numerous other changes in the individual following non-specific therapy have been studied, but cannot be mentioned here. Hoff²⁷ nicely summarizes the important changes which occur as follows:

PHASE 1

1. The rising fever. The established fever.
2. Leucocytosis with a myelogenous tendency.
3. Lowering of the alkali reserve.
4. Increase in metabolism.
5. Increased destruction of protein.
6. Increase in the blood sugar.
7. Lowering of the blood cholesterol.
8. Dominance of the sympathetic.

PHASE 2

1. The decline of the fever.
2. Decrease in the leucocytes with a lymphatic tendency.
3. Rise in the alkali reserve.
4. Decreased metabolism.
5. Lowered destruction of protein.
6. Decrease in the blood sugar.
7. Rise in the blood cholesterol.
8. Dominance of the parasympathetic.

Thus we see that the injection of foreign protein has quite a profound effect on the organism. According to many recent investigations, anything which changes the individual's reaction stimulates the tissues to the destruction of the spirochete. Of special significance is the leucocytosis with the "shift to the left." Not only do we have defensive mechanisms of this type stimulated in the injection of foreign proteins, but according to Hektoen, Pfeiffer, Weichardt, Fränkel and many others, we also have a concomitant rise of all of the immune bodies. It is not difficult to comprehend that having a syphilitic infection, the stimulation to the production of all immune bodies would also stimulate the production of the anti-bodies for syphilis. Not only does the injection of protein have a non-specific effect, but even mercury is said to exert its action by a non-specific effect. It is said that the concentration of mercury which is attained by injection and inunction is insufficient to destroy the spirochete. Bergel²⁸ has shown that the mercury acts on the lymphocytes about the spirochetes, destroying the lymphocytes and liberating the enzymes. The effect of the mercury is said to last only as long as lymphocytes are present.

The Relation of Asthma to Syphilitic Infection. True bronchial asthma is a protein sensi-

tization. Every time the asthmatic has an attack he reacts to a foreign protein comparable to that resulting from the injection of foreign protein in the treatment of syphilis. It has been shown that the asthmatic possesses an unstable vasomotor system. These individuals are the so-called vagotonic type. Borchardt²⁹ tersely describes these individuals when he says that they possess a "reizbare Konstitution." They are "hypersensitive" and hyper-reactive. At the present time the belief is that the reason why the chronic diseases respond to non-specific therapy, is because of the fact that the non-specific agent "shakes up" the normal individual, and where he was stable before, now makes him unstable and reactive, causing his tissues to react to the virus with which he is afflicted. The asthmatic, on the other hand, is already "wound up," and therefore it is understandable how such an individual might easily dispose of a luetic infection. As has been shown above, early lues is influenced by non-specific protein therapy, and if anyone is receiving protein shocks, the asthmatic certainly is. Thus the asthmatic might remain relatively free from clinical manifestations of syphilis, or show a negative Wassermann reaction, even in the face of a history of a chancre without treatment.

CLINICAL RECORDS

I have recently had occasion to examine clinical records of asthma cases for the year 1929 and 1930 at the Cook County Hospital. Among these the following five cases indicate a syphilitic infection in which there was no history of treatment. All were Wassermann negative:

No. 11188820—J. K., white, aged 43. Chancre 12 years ago. W—now.

No. 1132479—F. B., colored, age 55. Chancre 19 years ago. W—now.

No. 1139849—J. D., colored, age 55. Chancre 15 years ago. Kahn—now.

No. 1141959—R. T. white, age 44. Chancre 24 years ago. W—now.

No. 1148684—S. C., white, age 45. Chancre 26 years ago. Kahn—now.

Asthma would therefore seem to confer an immunity to syphilis. It would be especially interesting to observe the incidence of neurological lues in asthmatics.

With the idea in mind of proving or disproving the general idea, the records of bronchial asthma cases at Cook County Hospital since 1927 were inspected. The incidence of positive tests on all services at Cook County Hospital for 1928

1930 was 18.4 per cent. It is a striking fact that the incidence of positive tests in asthmatics was much less: 2.5 per cent. We must not lose sight of the fact that at Cook County Hospital many diagnoses such as cardiac asthma, tuberculosis, aortic aneurism, bronchitis, etc., may be classified with bronchial asthma, and that therefore many of the asthma cases with positive Wassermanns should actually have been classified in the above named groups.

The following are summaries of the asthma cases for 1927, 1928, 1929 and 1930 (to April) at the Cook County Hospital in Chicago:

1929-1930				
No. of Cases	W. or K. Negative	W. or K. Positive	W. or K. Not Recorded	Cardiac Asthma, etc.
103	70	1++	32	1 Car. As.+++ 1 Myocard. ++ 1 Car. As. —

1927-1928				
No. of Cases	W. or K. Negative	W. or K. Positive	W. or K. Not Recorded	Cardiac Asthma, etc.
203	106	1++++ 3++	97	1 Car. As. ++ 2 Car. As. — 1 T. B. ++++

We see, therefore, that the incidence of positive Wassermann or Kahn tests in bronchial asthmatics at Cook County Hospital is 2.86 per cent for 1927-1930. Taking into account the cases which were possibly cardiac asthma or tuberculosis, we get an incidence of 4.92 per cent. Even this is very much lower than the average at Cook County Hospital.

The observations recorded above indicate that the incidence of positive luetic reactions in bronchial asthmatics is lower than the corresponding hospital group, and suggest the possibility that the repeated "shock reaction" to which asthmatics are subject influences the course of syphilis when present.

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DIAGNOSIS AND TREATMENT OF ACUTE AND CHRONIC EFFECTS OF INJURIES OF THE HEAD*

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There is a quotation which seems very apt in the discussion of the treatment of head injuries. It reads like this: "Be not the first to accept the new nor yet the last to lay the old aside." For hundreds of years there has been a great difference in the mode of treatment of head injuries. A hundred years ago there was a very acute discussion of the subject in England by two of the greatest surgeons of that time. Percival Potts, whom you know through Potts' aneurysm and Potts' fracture, operated on all fractures of the head, while Sir Charles Bell, who is known so well because of his experimental work in neurology, let all fractures alone. It is always very difficult to tell in statistics who is right, and it is particularly so in the treatment of injuries of the head because they are so varied in degree and in extent. Today there is just as much difference of opinion as there was at the time of Potts and Bell. The reason is that there can be no standardized treatment for injuries of the head. They are too variable. Each case necessarily is a law unto itself. You may have one injury which is merely a concussion of the brain; you may have another with a tremendous hemorrhage, and a third with great edema. Of course, the statistical results are going to be dependent on the individual factors concerned

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in each case. Statistics are very bad when adjusted to such a variable condition as an injury of the head.

It is from the treatment of centuries back where the skull was treated and not the brain that the term, fracture of the skull, has been handed down. At the present time this is nothing more than a figure of speech. We are not concerned with fractures of the skull. We are concerned with what occurs in the brain. The figure of speech is retained. It is very much as we say, "the kettle boiling," when of course we mean the water in the kettle is boiling.

Potts operated in those days along the entire line of incision and would follow the crack from one end to the other, making a trephine opening the entire extent of the crack. Of course in those days they did not understand infection; they thought infection came from within, from extravasated blood. These trephine openings were made in order to let out what they considered infection of that origin.

I was recently very much impressed with a line of treatment which has, in fact, become almost vogue over the entire country. A patient will enter a big hospital and be sent immediately to the x-ray room. He will have stereoscopic x-rays taken, then he will be sent to the dispensary or the ward to have a lumbar puncture. If the cerebrospinal fluid is under pressure, some of it will be withdrawn. If the patient's condition is serious, he will have in addition, an intravenous injection of hypertonic glucose or hypertonic salt solution, then he will be sent to the ward and observed and perhaps the lumbar puncture will be repeated from time to time, for therapeutic or diagnostic purposes, and he may have more intravenous therapy. I presume nine-tenths of the doctors treat injuries of the head in that way and still it seems such a harsh and unscientific way of treating patients. In the first place, it is bad because all patients are treated more or less alike and, as I have already said, you cannot standardize the treatment. We want to find out as nearly as possible what is going on in that patient's head and we can only learn that by careful study of the patient and continual watching from the time he enters the hospital. It is bad also because it is a treatment which has a great potential harm. We must be sure when a system of treatment is introduced

that we are not going to do more harm than we are going to do good.

In the first place, there is no point in rushing that patient to the x-ray room. You are not at all interested in the fracture of the skull beyond the fact that there may be a depression and you can feel that just as easily as you can see it in the x-ray. It is not going to help us one bit to see a crack of several inches at one point in the head. There are many patients who are so ill that the movement from the stretcher to the x-ray table and back again, and to the dispensary or ward is the straw that breaks the camel's back. Many times I have seen patients in whom after the operation on brain tumors or other types of brain lesions the slightest movement when they were very ill meant the loss of that patient's life. Precisely the same holds after injuries of the head. If you will follow through the postoperative period of cases operated upon, there will follow precisely the same line of progress that holds after injuries of the head. There is probably very little use for an x-ray of the head under any circumstances. I will admit that for medicolegal reasons and because of the present state of legal advice and of trials as carried on by lawyers, that x-rays are useful but that is almost the only purpose that the x-ray serves. Rushing the patient to the x-ray room is entirely unnecessary. If you want an x-ray wait until your patient is out of danger.

Now about lumbar puncture, if one will use a little common sense he will get far more information about his patient's condition than he will from a lumbar puncture. It is not necessary to do a lumbar puncture to find out how much intracranial pressure there is. Watch the patient's pulse pressure, his respiration and temperature, and, above all, watch the state of the patient's consciousness. Then you will know far more about what is going on in that patient than the man who has done a lumbar puncture.

The treatment is dependent upon what is going on in the head. Precisely the same thing is going on within the head that happens when you strike your hand, two things, edema and hemorrhage. Just as a blow on the hand will produce edema and hemorrhage of the palm and fingers, so it is in the brain. You may get much hemorrhage and little edema or you may get much edema and little hemorrhage. Now injuries of the head are serious because of intracranial pres-

sure almost entirely. Intracranial pressure results from the amount of edema and the amount of hemorrhage combined. When that amount reaches a certain quantity, then of course life cannot be sustained longer and our object in studying the patient so carefully is to find out when the point is approaching at which nature can no longer make compensation for this volume of edema and hemorrhage. Nature has remarkable powers of compensating for the new volume of edema, fluid and blood. She can adjust the intracranial chamber by pressing out the cerebrospinal fluid into spaces inside and outside the brain. The space outside the brain collapses and the fluid passes into the blood vessels. As the volume of the brain increases, the ventricles decrease and so she gets a space adjustment equal to the volume. How do we know by studying the patient's symptoms when he has passed beyond or up to that point of adjustment? We know by the slow pulse. Up to a certain point in the compensation of intracranial pressure the pulse will be slow and when the pulse cannot be increased in rate, then we know that there is beginning a break in compensation. We know by the respirations. As long as the respirations are slow and regular we know that nature is compensating for that volume of blood and fluid. When they become rapid and irregular, we know a break is coming on. Now temperature is a very important index also, perhaps one of the most constant indications of pressure we have. As long as the temperature remains below 101, 101.5 or even 102 compensation is taking place. When the temperature rises above that point we know that the pressure is rising above compensation and then there will be a steady rise commensurate with increasing pressure. Perhaps as important as all of these is the state of consciousness. If you watch the patient carefully and note his state of consciousness to question or supraorbital stimulation or whether that state of consciousness is increasing or decreasing, you know pretty well how that patient's condition is. Now there is another factor and that is the state of restlessness. This state means in intracranial pressure what pain does in appendicitis; it is a warning sign. Nearly always a patient will pass through a stage of restlessness before deepening into coma. It is the most valuable sign we have. It may last for many minutes, it may last for many hours, but you know

that the patient is going on that very slender margin of safety when that restlessness is present. Of course, a patient coming out of coma will become restless but you will know whether the restlessness means improvement or not by the former state of consciousness. These very simple tests are far more useful than lumbar puncture in determining what is going on within the head.

Lumbar punctures are not harmless procedures; they are extremely dangerous procedures under certain conditions. It is perfectly true that patients tolerate repeated lumbar punctures, and yet there are certain types of lesions that will not tolerate lumbar puncture. I presume one of the best examples and the easiest to understand as to the danger of lumbar puncture comes in spinal cord tumors and precisely the same underlying factors hold in this condition as in injuries of the head. If in certain types of spinal cord tumor, particularly a dural endothelioma, one does a lumbar puncture the chances are very strong that immediately or within twelve hours that patient is going to lose sensory and motor power below the level of that tumor. If the patient has a cervical tumor and you do a lumbar puncture, it is a very simple thing. If you do a lumbar puncture under those conditions that patient may lose all the use of both arms and both legs in twelve hours, because there is a little higher pressure above the tumor than there is below, blocking the spinal cord. That little difference in the rate of pressure obtained by the fluid crams the spinal cord against the tumor, traumatizes it and paralysis results. If the tumor is in the medulla, alongside the medulla or in the cerebellum, instead of loss of motor and sensory function you get a loss of life. That we see over and over. There is not anything more dangerous to do in the presence of a brain tumor than a lumbar puncture. A lumbar puncture can be tolerated if the brain tumor is in the cerebrum, but if it is in the cerebellum, the chances of injury are very high. Now as I stated before, precisely the same conditions exist in injuries of the head. If you have a severe injury of the head and do a lumbar puncture, you are liable to get some injury to the brain stem and loss of life. If you do a lumbar puncture without knowing where the injury is and the degree of injury, you are taking a very unnecessary and very unwise chance.

Now there is one other condition in which lumbar puncture is extremely dangerous and that is in extradural hemorrhage. Every extradural hemorrhage ought to be diagnosed and the patient's life saved. There ought to be no mortality. Suppose you do a lumbar puncture in the presence of an extradural hemorrhage, what happens? In the first place, how does nature control bleeding from the middle meningeal artery which is the cause of extradural hemorrhage? Extradural hemorrhage results because the injury passes through the bone at the point where the middle meningeal artery is attached to the bone. It tears and bleeding occurs between the dura and the bone. That artery has little branches running from the vessel to the bone. As the hemorrhage increases in size, another of those little branches will be torn, so that it is a vicious circle. That is why extradural hemorrhage becomes so marked. Nature's method of controlling hemorrhage is by tampon of the brain, the pressure of the brain itself against the dura. If you do a lumbar puncture, what happens? The dura pulls away and automatically the bleeding points are again opened up in a new field and the hemorrhage immediately increases. If you want to see a rapid downward progress of a case in injuries of the head, you will see it in extradural hemorrhage after lumbar puncture. From these two causes alone it is evident that we are not justified in doing something for diagnosis that entails such a great risk.

Now does lumbar puncture ever do good? Perhaps we might be justified in using lumbar puncture with the dangers involved, if it did good in other cases, but does it? I do not believe it ever does. There is no question but that it will do good immediately. You see the patients improve immediately because of release of pressure, but what happens? There is bound to be a reaction. The fluid you remove is going to recur in greater extent and greater volume. You cannot do a lumbar puncture on an injured brain without adding trauma to the brain. The trauma you do with lumbar puncture is no different from the trauma that occurred in the original injury. Now since lumbar puncture does not do good and does very great injury, it seems to me that it is dangerous to use it as a treatment under any circumstances.

Now about intravenous glucose and intraven-

ous salt in hypertonic form. Here is a physiological fact which is beyond question. You can take a dog's brain and introduce so many cubic centimeters of a 25 per cent. salt solution and see the volume of the brain reduced tremendously. But what happens? In the first place, you are doing exactly what you would do in cases of lumbar puncture if there is extradural hemorrhage. There is almost certain to be a fatal result because you are taking away nature's way of stopping the hemorrhage. You cannot keep these injections up and you cannot repeat them every few hours, and besides the patient continues to get worse if you do.

What treatment would I suggest for injuries of the head? In the first place, study the patient as carefully as possible and there is not any part of neurologic surgery that needs more careful observation than injuries of the head. The cases that you see are going to be saved by careful watching. The more carefully you watch them, the more cases you are going to save. There are only about ten per cent. probably of injuries of the head that you are going to save by operative means. The operative means which we use are purely those of controlling the intracranial pressure. The operative procedure for controlling intracranial pressure is simply decompression. In perhaps 70 per cent. of the cases—the percentages vary of course—the patients are going to get well if you just let them alone. Nature is going to make adjustment of the intracranial pressure. If you are going to do intravenous injection and lumbar punctures, you are going to lose a certain percentage of that 70 per cent. Now we have to adjust ourselves to the fact that there are many injuries of the head that we are not going to be able to save, no matter what we do. They are far beyond any of our efforts. Now this rule is probably as good as we are able to evolve. This excludes extradural hemorrhage which you have to stop right away or you are going to lose the patient. If you will watch the patient for five or six hours and that patient begins to show signs of going downhill from intracranial pressure, he should be operated on by a simple subtemporal decompression. There was a time when most cases were operated on by decompression and the mortality was terrific. If the patient is going to die before five or six hours there is nothing you can do to save him. The pressure is far beyond the

degree where decompression will have any effect. There are, of course, many cases that you cannot save after five or six hours, but you can save ten per cent. by doing something and doing it at the right time. You cannot wait until signs of broken compensation are so pronounced, high temperature, high respiration. It is that ten cent. in which we must make our great effort to save the patient.

Now extradural hemorrhages are not common. Probably five per cent. of the whole number of hemorrhages are extradural. There is only one treatment for a patient with extradural hemorrhage—close the artery that is bleeding. That is not difficult under local anesthesia. We must make every effort to find out what deep artery it is and treat it as quickly as possible by what we acknowledge as the best treatment.

About depressed fractures of the skull, I do not think there can be any dispute about the necessity of raising a depressed fracture or removing the bone as the case may be. One of the great sources of epilepsy is a depressed fracture of the skull. This morning when Dr. Cheney was reading his paper I thought about the difficulty of evaluating epilepsy in the terms of preceding injury. Of course, every one with epilepsy looks back to injury as the cause, just as everyone with brain tumor looks back to injury as the cause. There is no question but that depressed fracture causes epilepsy. There is no question but that serious injuries of the brain cause epilepsy. Any serious injury of the brain is a potential source of epilepsy. If a patient is going to develop epilepsy from an injury to the head, the epilepsy will practically never start within a year, but usually within eighteen months after the injury. That does not hold for depressed fracture because the exciting agent is there constantly. It is when the lesion has adjusted itself to the scar within the brain that epilepsy comes on, a year to eighteen months after injury. Of course, one has always to look back into the patient's history. The patient will not tell you if he had attacks of epilepsy before the injury which recurred after convalescence.

There is one other fracture that I find is badly treated and that is compound fracture. What are you going to do with a compound fracture? A compound fracture should be reduced to a simple fracture at the very earliest moment because of the danger of infection. No

matter how serious a patient's condition may be, shock or otherwise, that compound fracture must be reduced or at least so handled as to prevent the introduction of infection from without. If the patient's condition is good enough the wound can be closed tight without drainage. There is no reason for ever draining a wound of the head. In the first place, your chances of infection are very much less. Secondly, if infection does develop later then the wound can be opened and the infection treated just as effectively as if a drain had been left in place. A depressed fracture should be lifted just as quickly as the patient's condition will justify it, except that closure of a compound wound never should be done when the patient is in active shock.

So much for the treatment of acute injuries of the head. Unfortunately, there are many late results from these injuries that come under quite a group of different types. Of course, the one outstanding complication is post-traumatic neuroses. I shall not go into it. You are more familiar with that than I am. It is the most distressing chapter in pathology.

I shall show some slides illustrating different types of the late effects of head injuries.

CESAREAN SECTION, ITS INDICATIONS, LIMITATIONS, TYPES AND COMPLICATIONS*

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In attempting to make a fairly comprehensive research of what has been written upon the subject of Cesarean section and to present it in a somewhat abbreviated form, one is confronted with the idea that the operation is performed for almost every obstetric condition that could possibly be conceived. In fact, in many instances, we are convinced that it has been done in the absence of any particular indication. But with the opportunity afforded one for instruction in this department of medical science during the past few years, along with the facilities we now have in caring for patients in the prenatal and the postpartum periods, not only in the maternity

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hospitals but in the modern, general hospital of today, as well, plus the training for specialization which may be had and is obtained by men even from the smaller cities of the country, training which prepares these men definitely in the obstetric art, the indication for section should not only be more clearly defined, but more strictly adhered to.

INDICATIONS AND LIMITATIONS:

1. The *contracted pelvis* offers a large percentage of the cases for section. Of these, the flat pelvis, in which three types are generally recognized—the simple flat, the rachitic flat, and the generally contracted flat—comprises a condition which gives rise to the greatest amount of dystocia. One finds, also, the obliquely contracted pelvis, the transversely contracted pelvis, the funnel-shaped pelvis and the generally contracted or justo minor type of pelvis. These latter, however, are observed far less frequently than the flat type of pelvis.

In the classification of pelvis and in the consideration of labor in the normal types one should, of necessity, exercise judgment before concluding that a fetus cannot be delivered through the birth canal, since the stature of the mother as well as the size of the baby must be considered. The factor of the fetal head overriding the symphysis pubic, as also the possibility of its moulding, may not be overlooked.

Practically all of us have been taught pelvimetry, though almost as many have at once proceeded to forget this essential part of our training. And it is quite within the bounds of propriety to suggest that the taking of these measurements is confined almost wholly to those men who are limiting their work to obstetrics.

As a very matter of fact external pelvimetry offers one little information of really definite value, but the internal measurements taken with care are fairly accurate and the estimation of the diameters is the only practical method we have in determining whether the pelvis is contracted. If the conjugata vera is 7.5 cm or less it is almost impossible for a baby of 3,100 grams, or seven pounds, to be delivered per vaginam. If this measurement lies between 7.5 cm and 9.5 cm, with strong uterine contractions, a baby of normal size may have a 50-50 chance to pass through the normal birth canal. With a conjugata vera larger than 9.5 cm the fetus has a good chance

to be delivered normally provided the distance between the ischial spines is 8 cm or more. This latter diameter must never be overlooked in a primipara, because of the fact that one may be dealing with a funnel-shaped pelvis which permits the fetal head to engage, but wholly prevents its passing through the outlet.

2. *Placenta praevia* provokes a divergent opinion among the obstetricians, but with a placenta centralis, unless the child is too premature, I am of the opinion that a large majority of them will recommend a section.

3. In *certain* cases of *abruptio placentae* and *prolapse of the cord*, as well as for *neglected shoulder* and *breech presentations*, section is generally conceded to be the delivery of choice.

4. Multiparous women whose cervixes reveal extensive *scar-tissue formation*, as a result of lacerations brought about during previous labors or through operative procedures in the upper vaginal tract, are subjects for section, since these keloid cervixes will scarcely dilate. And the lacerations resulting from labor in such cases may extend well up into the broad ligaments, giving rise to alarming hemorrhages, infectious processes and prolonged postpartum convalescence, as well as to chronic, future invalidism.

5. In the presence of *carcinoma of the cervix* section should always be the method of delivery in order to avoid rapid, metastatic implantation of the cancer cells. A panhysterectomy, in a large majority of these cases, should follow the section. As a further means of protection to the patient radium or x-ray or both should be used.

6. *Malignancies of the bladder and rectum* offering obstruction to the pelvic outlet are absolute indications for section and the operation, as in the above instance, should be followed immediately by x-ray or radium therapy.

In primiparae, in whom a long, rigid cervix is found, one may do well to resort to cesarean section, because of the long, tedious labor which results in a large majority of these cases. This, however, may not be taken as an iron-clad rule or procedure because, only recently, the essayist has confined two primiparae, one of 43 and the other 45 years of age, whose labors were normal and without dystocia.

8. In *eclampsia* or *pre-eclamptic toxemia*, especially in elderly primiparae in whom the

cervix is long, rigid and closed, or in one whose pelvis reveals that degree of contraction which might cause the accoucher to feel that should delivery through the normal birth canal be attempted he may come to grief on account of losing both the mother and the baby, a section should certainly be done.

9. *Obstructive growths*, such as *fibromyomata uteri* and *pedicled cysts* of the ovaries which encroach upon the birth canal, especially in the most dependent part of the pelvis, in which position they become obstacles to descent and engagement, call for section with removal of the obstruction.

10. *The physical condition of the patient* is always a prime factor in the consideration of the termination of labor and this feature should be ascertained early in the gestation period in the execution of the finesse of our diagnosis and prognosis. In the face of a *poorly compensating heart* or in the presence of an *active pulmonary tuberculosis*, one should not temporize with the case, but perform a section as soon as, or even before, the patient is at term.

TYPES AND COMPLICATIONS:

1. *The Classic cesarean section*, for the sake of safety to the mother and to prevent grief on the part of the operator, as well as to educate the obstetric surgeon to a greater sense of responsibility and humanitarianism, should either not be considered or it should be limited to the absolutely clean case, since the mortality and the morbidity in this type of operative procedure are both high, as proved by hospital records. The Michael Reese Hospital reports a mortality rate of 5.5 per cent. in the classical operation as compared with 1.3 per cent. for the low cervical or laparotrachelotomy, even with both groups in the hands of trained, obstetric surgeons and done, as they were, in the excellent obstetric department of a Class A institution.

General statistics regarding the mortality rate in the classic section show an astoundingly high percentage. In several of the hospitals in the vicinity of Boston, in cities ranging from 25,000 to 40,000 population, where the work was done by general surgeons and practitioners, as revealed through the statistics gathered by Newell, the death rate is shown to have reached the staggering enormity of 20 to 30 per cent.

Adhesions as have been reported in abdominal operations which have followed the classic section, are not an infrequent occurrence; nor is it by any means unobserved that a spill of meconium, liquor amnii and blood finds its way into the peritoneal cavity creating an unnecessary rise in temperature as a result of foreign protein absorption.

One will not dispute that on account of entering the general, peritoneal cavity and having to handle the intestines, at least to some extent, that the patient cannot avoid a certain degree of *peritoneal shock*, *tympanites*, *ileus*, or *gastric dilatation*, for nature abhors a vacuum no less than the nervous organism resents the insult offered by an abdominal prowl.

The probability of *rupture of the uterus* in subsequent labors is a complication which demands serious consideration; although we do know that some women have given birth to a baby through the normal birth canal following the classic section. The fact, however, that this type of section is easier to do and may be done more speedily than the low cervical operation, should in no manner influence us to do, or even afford anyone a leeway for doing, the easier type of operation.

2. *The low cervical section or laparotrachelotomy*, as designated by J. B. De Lee has, during the past ten years gained in ascendancy with obstetric surgeons, and rightly so, because of the many factors which commend it so admirably. The *mortality and the morbidity*, as have already been pointed out, are greatly lessened. These conditions, though depend largely upon: 1, the particular type of the case, as to whether it is clean or infected; 2, the number of hours the patient has been in labor; 3, the state of the membranes, whether they are intact or ruptured, and last but not least, 4, the technical cleverness of the operator.

In a series of cases reported at the Chicago Lying-In Hospital, running well into the hundreds and extending over a period of ten or more years, vomiting has occurred in only a few instances. There has been little peritoneal shock, tympanites, ileus or gastric dilatation and, in fact, the convalescence has been more similar to that following an uncomplicated appendectomy. It has even stimulated that of an uneventful postpartum period of a normal labor.

Postoperative adhesions, except in frankly infected cases, those cases in which one would naturally anticipate such pathology, are infrequent and have been conspicuous on account of their absence, as has been reported by De Lee, Williams, Hirst, Polak, Peterson, Titus, Danforth and others who have had occasion to do a second and even a third section on individuals previously delivered in this manner.

Ruptura uteri is an almost unheard of complication in labors subsequent to the low cervical section, as has been pointed out in the literature, since only eleven authentic cases have been reported following a series of 25,000 laparotrachelotomies.

3. *The Porro Operation* is merely the removal of the uterus and adnexa subsequent to a cesarean section. The original operation which consisted simply of cutting across the cervix and the broad ligaments in the region of the internal os, ligating the stumps and attaching them to the anterior abdominal wall, thus leaving them extraperitoneally, has long since been abandoned and a technique such as that in doing an ordinary supravaginal hysterectomy is used.

The indications for the operation generally group themselves under the following heads:

1. Ruptura uteri.
2. Atony uteri, such as may sometimes occur following a section.
3. Fibromyomata uteri, either submucous or intramural.
4. Conditions of the uterus and adnexa which render it difficult or almost impossible to secure and control hemostasis.

4. *The vaginal cesarean section*, or hysterotomy, as it is now more generally referred to, is seldom resorted to in the States, but in the clinics of Continental Europe it is frequently performed in the presence of obviously infected cases, such as for which it was originally intended.

SUMMARY:

1. Accurate external and internal pelvimetry should be executed on all primiparae and records made of these measurements.

2. Finesse of detail should be exercised in the study of all primiparae that we may be more certain in our diagnoses and prognoses.

3. The classical section should be resorted to only under such conditions as those which call

for a most rapid emptying of the uterus, and even then the case should be a clean one.

4. The low cervical operation or laparotrachelotomy is the section *par excellence* because of its:

- (a) Safety from uterine rupture in subsequent pregnancies and labors.
- (b) Adaptability for meeting and caring for infections.
- (c) Freedom from adhesions.
- (d) Lack of peritoneal shock, ileus, tympanites or gastric dilatation.
- (e) Uneventful postpartum convalescence.

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TREATMENT OF VINCENT'S ANGINA AND STOMATITIS*

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Since 1925^{1,2} in Germany and France the use of stovarsol in the treatment of syphilis, especially in infants and children, has been found very valuable. Stovarsol or spirozid, as it is called in Germany, is an arsenical which can be administered by mouth, and therefore has the advantage over those which must be injected. After considerable experience with stovarsol in the treatment of syphilis it appeared that it might also be efficacious in the treatment of Vincent's angina and stomatitis, since the lesions of syphilis disappeared as rapidly with stovarsol as with the various arsenicals which are injected. With this idea in mind the coöperation of several physicians at the Children's Memorial Hospital

*Stovarsol for this study furnished by Merck and Company.

was asked. Our case reports and comments follow:

Case of Dr. J. L. Reichert:

Girl of 8 years. April 29, 1930, patient complained of sore throat, lassitude, chilly sensation.

April 30, temperature 102.6. Six to 8 shallow gray pinhead to pea size ulcers were present on the soft palate with sharply demarcated irregular borders. Mucosa of soft palate intensely injected. Smear shows many fusiform bacilli and spirilli. One-fourth tablet stovarsol to be given daily. No local treatment.

May 2. Temperature normal the past 24 hours. Appetite good. No pain in throat since afternoon of April 30 (a few hours after beginning of treatment). Ulcers are very shallow, somewhat larger, borders circinate. Smear positive for Vincent's organisms.

May 3. Faint traces of ulcers on palate. Ten to 12 pinhead shallow ulcers seen on buccal mucosa, especially opposite lower teeth. No subjective symptoms.

May 5. No ulcers seen anywhere.

May 6. Smear negative. Mucosa normal.

Case of Dr. Harold A. Rosenbaum:

Girl of 1-9/12 years. History of sore mouth beginning June 15, 1930. Patient was first seen June 18. At this time there were three small superficial ulcers near the tip of the tongue. The pharynx was inflamed and the gums beefy red, spongy, and bled easily. Fusiform bacilli and occasional spirochetes were present in the smear of the ulcers. She was given acetyl salicylic acid two grains in orange syrup every three hours.

The patient was next seen in the evening of June 19. There was no improvement in throat, gums or tongue, and an ulcer was present on the left cheek and a swollen left submental node size of an olive. Temperature was 101. Food was taken only on forcing. One-fourth tablet of stovarsol was ordered given that evening and again the following morning and each day following:

June 21. Temperature 99. Mother reported that child took food eagerly but that the gums bled easily. The enlarged lymph node was smaller, she said.

June 22. Child eating well but gums bleed.

June 23. Child apparently well. Swollen submental node almost gone. Gums no longer bleeding and appear almost normal. Smear shows few fusiform bacilli and rarely a spirillum.

Case of Dr. J. Rhodes and Dr. A. Newcomb:

Girl of 1 6/12 years. Temperature 98. Seen May 17, 1930, with complaint sore mouth for four days. Inflamed buccal mucosa and gums swollen and red with ulcers present. Foul odor from the mouth. Tongue has a marked coating and bleeds readily. This patient was treated for two days with hydrogen peroxide locally and potassium chlorate internally.

May 19. Local condition as on previous visit. Child refuses to eat. Smears showed many fusiform bacilli and numerous spirochetes. One-fourth tablet stovarsol begun daily.

May 22. Patient eating better but still cries a good

deal. Both ear drums injected. Gums greatly improved. Two ulcers still present on upper maxillary gums. Smear report: numerous fusiform bacilli and occasionally spirochetes.

May 26. Patient eating better. There is still some excoriation around the gingival margins of the lower incisors but very little redness and swelling. Smears show many fusiform bacilli and numerous spirochetes.

June 2. Gums have healed. Small ulcer at base of tongue and some redness of anterior lower incisors present. Smear: numerous fusiform bacilli but no spirochetes seen.

Case of Dr. G. Muns:

Boy of 3 1/12 years. Admitted to outpatient department of Children's Memorial Hospital April 17, 1930. Temperature 101. Gums red and ulcerated. Pharynx inflamed. Stovarsol 1/4 tablet was ordered to be given daily in a tablespoonful of water or milk and child asked to return in a week.

April 24. Temperature 99. Mother stated there was relief first day of treatment as shown by willingness to take food. There were no ulcerations but the gums were still redder than normal. At this visit I saw the patient and the mother brought also the baby, a girl of 1 5/12 years. For the past two days she had been fussy, refused all solid food, and had a sore mouth. Temperature was 100.4. Ulcers were present over buccal membrane and the gums, and the gums bled easily. There was also some cervical adenopathy present. The child was ordered given 1/4 tablet of stovarsol daily. The mother did not return with the child, but it was learned on inquiry that the child was progressively better the following days.

Case of Dr. A. Newcomb:

Patient age 2 8/12 years, tempt. 99, came to the outpatient department May 12, 1930, with a complaint of severe sore mouth. For two days the gums were deeply reddened, swollen, bled easily, and there were a few superficial ulcers on the tongue. The right tonsil was swollen and red. Smears showed many fusiform bacilli and spirilli. One-fourth tablet of stovarsol was given daily and on May 15 patient returned and the following note is recorded: Child feels very much better. Ulcers on tongue gone. Gums still tender and red. Tonsils reddened. The laboratory report of the smear is as follows: Numerous fusiform bacilli seen, but no spirochetes seen.

Case of Dr. Louise Kappes and Dr. D. Hutton:

Girl of 2 5/12 years. Temperature 101.8. First seen May 22, 1930. She was an exceptionally well developed and well nourished child. She was brought in because of a sore mouth of four days' duration. Many small superficial ulcers were present on and under the tongue and on the buccal mucosa and there was a dirty yellowish brown necrotic membrane on the right tonsil. The alveolar margins, particularly the upper left, were red, ulcerated, and necrotic in places. There was a foul odor from the mouth. A smear of a mouth ulcer showed occasional fusiform bacilli but no spirochetes.

Local treatment with hydrogen peroxide was ordered and $\frac{1}{4}$ tablet of stovarsol daily. When she returned on May 24th the temperature was 99. There was little apparent improvement in the local condition. The mother stated, however, that the child swallowed better after one day of treatment. She did not return with the child as requested, so a social worker was asked to make a call to find out what had happened. The call was made one week after the last visit to the outpatient department. The mother stated that the child was in the street playing and said that three days after treatment had been begun she seemed well and ate as usual. She had therefore not considered it necessary to return with her.

The above case seems to be of the type Faber³ refers to when he says: "Often the lesions appear unchanged after one or even two days and will suddenly on the third or fourth day appear almost healed." This period he called the "latent period." "In some instances," he says, "the temperature is a better guide than the local appearance, and drops to normal within one to two days."

Case of Dr. I. M. Epstein:

April 17, 1930. Girl age 2 $\frac{4}{12}$ years. Temperature 100.4; weight 23 pounds. Sore mouth and throat for three days. Bleeding, swollen gums. Smear showed many fusiform bacilli and many spirochetes. Given $\frac{1}{4}$ tablet sovarsol.

Seen again April 24. Temperature 98, weight 24 $\frac{3}{4}$ pounds. Mouth well except about a carious tooth which was abscessed. Many fusiform bacilli, no spirochetes seen. The gain in weight here bears evidence of the greater intake of food.

Comment:

Although few in number, these cases seem of value because of the similarity in results. In all cases where there had been fever the temperature fell to normal in 24 hours. Perhaps the most striking feature of this treatment was the relief from pain within 24 hours or in some cases even in less time after the beginning of treatment. Eager taking of food was commented on by parents of children who previously for days had taken food or drink only after urging and force. The decrease in the number of spirochetes in smears and in some cases their disappearance following treatment is noteworthy. The fusiform bacilli did not disappear. These patients seemed to improve equally as rapidly as those treated by injections. This conclusion is reached after comparison with Faber's cases and those of Barenberg and Bloomberg⁴.

Local treatment if given should be most careful, as if not carefully done it can do more harm

than good. Moreover, it does not appear necessary. Gerber, quoted by Faber³, showed in 1910 after careful study that following the "administration of arsphenamine the spirochetes in actual lesions lost their motility within 24 hours and disappeared shortly, while those on normal surfaces were unaffected." It would seem, however, that where possible bland and cleansing mouth washes, as diluted hydrogen peroxide, sodium perborate solution, etc., might well be used.

Although we have not used stovarsol in the treatment of adults with Vincent's angina, it should act well, judging from its action in children and its good results in the treatment of syphilis in adults. Cregor and Gastineau⁵ used stovarsol in the treatment of syphilis in adults and compared its efficiency to that of neorsphenamine. A conservative adult dose (to be used in Vincent's angina or stomatitis) should be 1 $\frac{1}{2}$ tablets daily. The tablets are 0.25 grams and this is true of the French and American stovarsol and the German spirozid, which, as already stated, are identical. The toxicity of this drug is evidently low, as Cregor and Gastineau gave their syphilitic patients a course which lasted four to five weeks, during which time they received an average of 15 grams of stovarsol.

Summary:

Stovarsol worked well in the treatment of stomatitis and Vincent's angina in children.

In cases with fever its use was followed by fall of temperature to normal within twenty-four hours, there was relief from pain, and the children ate again without forcing. Subjective improvement in some cases preceded objective improvement.

Stovarsol should work well in the treatment of adults with Vincent's angina or stomatitis.

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4753 Broadway.

INSTRUMENT FOR THE EMPTY VEIN INJECTION TREATMENT OF VARICOSE VEINS

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(T. C. Dub.)

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CHICAGO

It is agreed by most authorities that the best results from the injection of a sclerosing solution into varicose veins is obtained when the solution is injected into an empty vein. It would appear that the minimal dilution of the solution is the ideal to be sought.

An examination of all instruments thus far recommended for the injection treatment of varicose veins shows that they do permit of the

4" long by $2\frac{1}{2}$ " wide and $\frac{1}{8}$ " thick, to which is attached by means of hinges a shutter B of the same thickness and contour, which when closed at C leaves an opening D. The device is

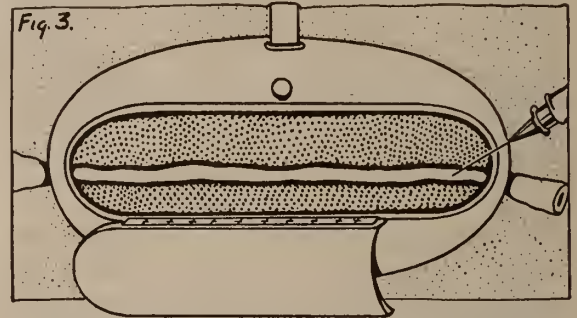


Fig. 3. Shows the shutter open and the injection being made into the vein which is practically empty.

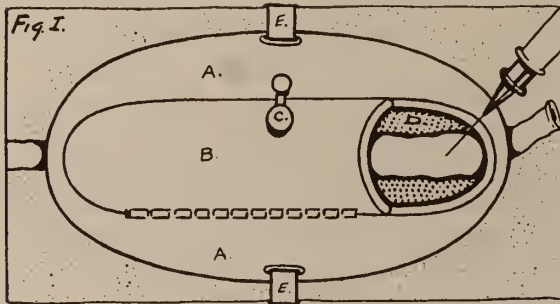


Fig. 1. Showing clamp applied in the closed position and the needle of the syringe being inserted in the dilated portion of the vein.

injection of the solution into a vein which is empty. Most of them merely dilate the vein and thus facilitate the introduction of the needle, and the injection of the solution into an already overdistended vein, with resulting dilution of the solution. This led us to investigate the possibilities for the construction of an instrument that would permit of a simple method of injecting the solution into an empty vein. The instrument described here is the result.

The instrument consists of an oval shaped slightly convex metal frame piece (A. Fig. 1)

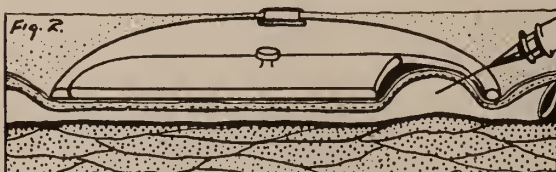


Fig. 2. Longitudinal section showing compression of the vein beneath the shutter and dilatation in the opening D.

incorporated in an elastic cuff E with a retaining fastener at one side.

The instrument may be applied with or without a constriction above the point of application. In some cases we find that it is preferable to apply a constriction because it causes the vein in the opening D to stand out more prominently. The instrument is applied to the leg over a vein with the shutter closed, causing the vein beneath the shutter to be compressed and the visible part in the opening D to bulge. The syringe containing the sclerosing solution is then inserted in the visible portion of the dilated vein as shown in Fig. 1; the shutter is now released and the solution is injected in the collapsed and

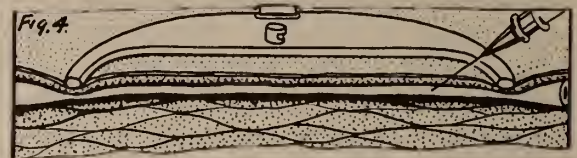


Fig. 4. Cross section with the shutter open showing the vein practically empty.

practically empty vein (Fig. 3). The instrument may be left on for 10 or 15 minutes, holding the solution in a small part of the vein and thus preventing its dilution, or the excess solution may be withdrawn after a few minutes and pressure applied by closing the shutter on the treated vein.

The instrument possesses the following advantages to recommend its use, namely:

1. The injection is made into a vein which is practically empty.

2. It limits the diffusion of the sclerosing solution to a small segment of vein about four inches long and hence increases the efficiency of the solution.

3. It dilates and holds a small segment of vein, preventing its being pushed aside by the needle, and it thus facilitates the easy insertion of the needle and in this manner minimizing the possibility of a perivascular injection.

4. The excess solution can be withdrawn and pressure applied on the treated vein, thus compressing it.*

5. The injection may be made with the leg in either the horizontal or vertical position.

6. Solutions that are less caustic may be used because the sclerosing solution comes into direct contact with the intima of the vein.

7. One operator can give the injection without assistance.

8. Sloughing as a result of leakage is avoided because of the absence of tension in the vein.

9. The danger of embolism will be decreased because the injection is made into an empty vein.

Since we have begun the use of this instrument we have had very good results and it has proven a great help. To our knowledge no similar instrument has been described in the literature.

612 N. Michigan Blvd.

SURGERY OF PULMONARY TUBERCULOSIS*

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CHICAGO

Had the subject of "Surgery of the Chest" been assigned to me not so many years ago and my time in which to give this subject had been limited to a period of a half-hour, I could very easily have covered all the important points and some of the detail. Today I am going to limit myself entirely to surgery in connection with tuberculosis, and I can assure you in the twenty

minutes allotted me I will have time only to touch some of the high spots.

Five years ago Alexander made a collection of all the cases in this country that had been operated upon for tuberculosis of the chest, and was able to collect scarcely a few hundred. This number has increased many times that amount since then.

This afternoon I am going to show you very briefly and very quickly the stages of three operations which are performed for the cure of tuberculosis of the lungs. I shall have no time whatsoever to go into the most important part of the question, namely, the picking of the case in which surgery is indicated.

Inasmuch as I have to pass over this completely, let me make one or two remarks about it. In the first place this is way and above the most important part of the subject. Such a procedure as I saw not very long ago should never be countenanced, and I am going to tell you the story just to bring out the fact.

I happened to be at a hospital out of town and while I was sitting in the x-ray room a surgeon rushed in with some films. When he saw me sitting there he said, "I am so glad you are here because we are going to do a thoracoplasty and I want to know whether you think we should start with the eleventh rib or the first rib. Here are the pictures."

I asked him where, in the past, most of the cases had been and he did not know. I finally found out that the man had come into the hospital three or four days before, and was there because he felt weak and because he had a cough. They made a diagnosis of tuberculosis in the right lung and were going into a thoracoplasty three days later.

A practice such as that is inexcusable. No case should be operated upon unless that case has been given a good trial on medical treatment first. All of the cases that I am going to show you have had from a half-year to five years' sanitarium treatment, and some longer. The idea of picking a case off the street for any of these operations should be discountenanced.

The aim of all operations in pulmonary tuberculosis is immobilization of the diseased lung. As you know, the primary factor in all medical treatment of tuberculosis is to put the patient at rest. Being able to put the patient at rest

*From the Surgical Clinics of Michael Reese and Mt. Sinai Hospital, Chicago. Published under the auspices of the Sachs grant.

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completely allows whatever recuperative power that patient has to function to its fullest extent, and the cures we get in medical cases of tuberculosis are not due to diet and not due to fresh air, but to the patient's recuperative power which is aided and abetted by rest.

Surgery goes one step further than medicine. Not only is the whole person put at rest but the lung itself is put at rest, and I will show you moving pictures of three operations which accomplished that. The first picture I am going to show you, and the simplest one, is a procedure which is called artificial pneumothorax, the second phrenectomy, and the third the most complicated procedure, extrapleural thoracoplasty. For completeness sake I should mention the operation of pneumolysis and that is the severance of adhesions which bind the lung to the chest wall interfering with the procedure of artificial pneumothorax, but inasmuch as this subject is still very controversial, I think it better not to dwell upon it today.

Pneumothorax. The first and simplest procedure for collapsing a lung and thereby partially immobilizing it, is the induction of a pneumothorax. Since the days of Forlanini, who conceived of the procedure, artificial pneumothorax has come into more and more general use.

In careful hands and with careful manometric control, the procedure is without danger. The technique consists of the introduction of a needle into the pleural space through an anesthetized area. The needle is connected by means of rubber hosing to a bottle filled with air. Water is gradually allowed to flow into this bottle and the air is thus forced through the tubing into the pleural cavity. The greatest safeguard in artificial pneumothorax is the manometer which is connected up with the rubber tubing in such a way that in any moment the exact reading of the intra-pleural pressure can be obtained. The amount of air allowed to flow into the chest cavity depends upon the type of case, the size of the patient, the presence or absence of adhesions, and numerous other factors. For the first pneumothorax it is wise to limit the amount of pneumothorax in an adult to less than 500 cc and certainly to discontinue while the pleural pressure is still markedly negative. A normal pleura will absorb at the rate of about 50 cc a day. Therefore in order to maintain pneumo-

thorax the pleural cavity will have to be refilled at frequent intervals. There is an individual variation as to the desirable intervals between refills. After a case has been refilled several times and the patient's condition is very well known, it may be permissible to give large amounts of air and to bring the pressure up to positive. I personally have seen one case in whom a positive pleural pressure of over 10 centimeters of water was maintained for about six months.

Phrenectomy. The second step in the surgical procedures for the cure of pulmonary tuberculosis, is the operation of phrenectomy. The operation consists in cutting and evulsing the phrenic nerve. There has been a good deal of discussion as to the correct name for this operation. Phrenectomy is not correct because that would imply excision of the diaphragm. Phrenicectomy is not correct either because the entire phrenic nerve is not cut out. Phrenic exeresis is a cumbersome name and means evulsion of the phrenic nerve; it is in part true but not completely so. Inasmuch as we have no name which exactly describes the operation, I prefer the name of phrenicectomy which describes it as well as any and which is fairly simple.

The phrenic nerve is available to the surgeon during its course over the anterior scalenus muscle in the posterior triangle of the neck. Its oblique course from without inwards and downwards is just the opposite from the course of the brachial plexus and therefore makes it readily distinguishable.

The operation performed under local. An incision is made parallel to and just above the clavicle. The scalenus anticus muscle is exposed and the phrenic nerve verified as it courses from without inwards over the scalenus muscle. In order to make the identification still more certain, it can be stimulated with a galvanic current and the diaphragmatic contraction noted. The nerve is injected, cut, and the distal portion grasped and with the hemostat slowly evulsed. The purpose for evulsing the nerve is to tear the accessory phrenic nerves which join the main phrenic in the mediastinum and which carry enough motor fibres to activate the hemidiaphragm.

Phrenicectomy results in a complete paralysis

of the homolateral diaphragm. The diaphragm is sucked upwards into the chest, diminishing the thoracic cavity to the extent of about 500 cc. The paralyzed diaphragm makes no active movements during the phases of respiration. It remains either immobile or shows very slight paradoxical motion.

Thus by having paralyzed the diaphragm, we have brought about a partial collapse of the lung and moreover having partially immobilized it.

Extrapleural Thoracoplasty. The 3rd and final procedure in the surgical treatment of pulmonary tuberculosis, is the operation called extrapleural thoracoplasty. This operation collapses and immobilizes the lung permanently, by decreasing the hemi-circumference of the chest and by inadvertently producing a fusion of many or all of the ribs. The operation consists of the paravertebral sub-periosteal removal of segments of each rib from the 1st to 11th inclusive. As a result, the underlying lung becomes collapsed and due to the irregular degeneration of bone from the remaining periosteum, the chest wall becomes partially or completely immobilized. For safety sake, the operation is done in two or more stages.

The results are extremely gratifying. So far in my series, 40% of the cases operated upon have been returned to industry; 40% are either slightly improved or unimproved; and 20% have died, either shortly after the operation or within three months after the operation. When one considers that these cases were all and every one of them cases who were getting worse under the best possible medical treatment—one might say parenthetically that no case should be subjected to thoracoplasty without prolonged medical treatment—one can see how excellent the results of thoracoplasty are. Instead of 100% unimproved, we have 40% of individuals freed from the Sanitariums and back at their usual endeavors.

In spite of the magnitude of the surgical intervention, there is no noticeable deformity. This is because the shoulder girdle itself—that is the clavicle and scapula—are untouched and all clothing that the patient wears is supported from the shoulder on the side operated on as from the shoulder on the opposite side.

104 S. Michigan Ave.

THE ROCKEFELLER FOUNDATION FOR THE WELL-BEING OF MANKIND

A. R. E. WYANT, M. D.

CHICAGO

During student days at the University of Chicago it was my privilege, as football captain, to grasp the generous hand of John D. Rockefeller who has given about forty-five million dollars as the founder of our great University. If he deserved any of the criticism heaped upon him in those early days for the way he earned his millions, he now deserves still greater praise for the way he is spending his hundreds of millions.

In business enterprises Mr. Rockefeller always desired to get dividends upon his capital. He once said to a friend of mine as a guest in his home: "I have been subjected to a great deal of detracting criticism. However, I am trying to conduct my business in an honest way. But, if anybody says that I am not in business to make money, he is mistaken." His life philosophy has been: Earn all you can honestly; save all you can honestly; give all you can honestly. And in his philanthropic enterprises also he desired to get dividends, payable, not in money, but in welfare of humanity. He had always been a generous giver and as his means grew so did the problem of giving wisely. "It is easy to do harm in giving money" was Mr. Rockefeller's conclusion. The art of giving wisely was even more difficult than the art of accumulating and had to be planned and organized in the same comprehensive way. It was learned by experience that great benevolent foundations organized and directed by the ablest executives, could best help in solving the world's great problems of human need.

The Rockefeller philanthropies include the Institute for Medical Research, founded in 1901; the General Education Board, chartered in 1903; the Bureau of Social Hygiene, established by John D., Jr., in 1912; the Rockefeller Foundation, under which are grouped the International Health Board, the China Medical Board, a Division of Medical Education and a Division of Studies, established in 1913. Also the Laura Spellman Rockefeller Memorial, incorporated in 1918 "for general charitable and philanthropic purposes"; and the International Education Board, created by the younger Rockefeller in 1923. The total of these gifts aggregate the

amazing sum of more than five hundred million dollars.

The Foundation alone, during the first ten years of its existence, spent \$76,800,000. Of this amount, nine million dollars was devoted by the International Health Board to campaigns against diseases. During the past five years still greater annual sums have been expended.

As a precursor of the Rockefeller Foundation, the Rockefeller Sanitary Commission was organized in 1909, for the avowed purpose of eradicating hook-worm disease in the United States. This worm malady was found to be very prevalent throughout rural districts in our Southern States. Wherever the larvae of this human intestinal parasite find conditions of soil and temperature favorable for life and development, there they flourish and there man, especially if he goes barefoot, is liable to infection by these larvae that penetrate the skin and find their way through the body into the intestinal tract, with consequent anemia, listlessness and other signs of low vitality characteristic of hook-worm infestation. It has been a tremendous curative and preventive problem and the campaign has spread all over the world and untold millions of people have been benefited. The hook-worm alone has been a major factor in health conditions among more than half the population of the earth. The Foundation has demonstrated the fact that mankind can dominate its environment instead of being dominated by it, and that the health of the people is the business of both local and national governments. Campaigns for the relief and control of hook-worm disease were carried on during the first ten years in 21 governmental areas throughout the world.

Through its various agencies the Rockefeller Foundation has co-operated chiefly in public health projects and improvements of medical education with governments and institutions in 60 countries.

With the outbreak of the World War the Foundation was one of the first American agencies to send a relief commission to Belgium and other continental countries, and later made large contributions for relief through the Red Cross and other international societies. The total sum spent by the Foundation on war work was nearly twenty-two and one-half million dollars.

The Foundation has concentrated its attention

and resources mainly upon the related fields of public health and medical education.

Modern medicine is an international product. This requires communication of ideas from worker to worker and from country to country. Quite as important as the circulation of the printed page is personal intercourse between leaders of science and migration of advanced students. The Foundation has been distributing medical literature and has subsidized through the League of Nations, traveling fellowships for health officers and is helping medical scientists and practitioners of all nations to work together more effectively.

The Rockefeller Foundation has done much in holding up for attainment the highest scientific ideals in the methods, spirit and scope of modern medicine. Its aim is the discovery of new truth and its application to human need. The scope of modern medicine goes beyond getting the patient well. Its greater work is to keep the patient well by providing immunity through vaccination against many communicable diseases, by fully cooperating with the health authorities, by insisting on frequent periodical examinations to detect incipient defects or diseases, and most of all by urging conformity to the laws of personal hygiene and the seeking of positive, vigorous, abounding health.

It is to the credit of doctors that they are the leaders in preventive medicine, and are willing to suffer any economic loss resulting therefrom. The modern physician realizes that the chief purpose of medicine is to keep people well, rather than to be content to alleviate or cure diseases which might have been avoided; for modern scientific medicine has discovered the causes of many diseases and the methods of their prevention or control. The doctors of the future must not only be able to treat their patients for illness, but also to preach and practice the gospel of good health that helps to realize the ideal of a sound mind in a sound body.

The great fight against yellow fever is well known. The Walter Reed Memorial Hospital in Washington commemorates the first medical martyr who died in seeking the cause of this disease which ravaged parts of South America, Mexico, Central America and the West Indies for a period of nearly two centuries. In 1900 Dr. Reed proved conclusively that yellow fever is spread only by the infected female *Stegomyia*

mosquito. It was this discovery that enabled General Gorgas to drive yellow fever out of Cuba and Panama and make possible the construction of that great canal.

General Gorgas' success and advice led the Rockefeller Foundation to undertake a campaign of complete eradication of this old-time scourge. It was gradually restricted until there were only a few well-known endemic centers from which it spread from time to time. Dr. Noguchi of the Rockefeller Institute discovered the yellow fever germ and prepared a vaccine and a serum which gave promising results. General Gorgas organized national yellow fever commissions in the chief countries concerned, and he was at the head of a commission on its way to clear up a seed-bed of yellow fever in West Africa when he died in London in 1920.

Yellow fever still presents a serious problem on the African West Coast where a very virulent type is endemic and from which it may have been originally carried in slave-ships to America. The Foundation has established a station there for experimental investigation and, sad to relate, two of the greatest soldiers of science—Dr. Adrian Stokes and Noguchi—fell on this field as victims of this disease they had done so much to control.

Malaria is another mosquito-borne disease still more widely diffused and more baffling to control. It existed even in the days of the Egyptians. The decline of Greece and Rome is attributed largely to malarian fever. Only 30 years ago it was discovered that the disease is caused by the bite of an infected *Anopheles* mosquito. By 1910 a technique had been worked out for the prevention of malaria through drainage, screening and other methods of mosquito control and through the use of quinine. These were the methods employed by Gorgas in Panama. The Foundation has rendered unique service and co-operation with the League of Nations in this world-campaign against a scourge which has made some of the most fertile parts of the earth uninhabitable.

In the health work of the League of Nations the Rockefeller Foundation has rendered most important assistance with men and money, in some years paying from one-third to two-thirds of the entire annual budget of the League Health Organization. The Foundation has an income of nearly ten million dollars a year from its en-

dowment for human welfare expenditure and it requires a volume of nearly 500 pages each year to report its widespread activities for "the well-being of mankind throughout the world."

CARBON MONOXIDE POISONING*

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Carbon monoxide is one of the most important poisons associated with human life and industry. It is out-distanced by only one other poison, grain alcohol. With the kindling of the first fire man came in contact with carbon monoxide, the most subtle of poisons. The effects of carbon monoxide were known in antiquity. Aristotle, nearly 300 years B. C., observed that "men suffer from heaviness of the head and often die from coal gas." L. Lewin,¹ in his exhaustive monograph upon carbon monoxide, gives many instances of poisoning by this agency showing that it had been a frequent cause of death by accident, by suicide and as means of punishment and torture. In 68 A. D. Seneca, after a number of attempts at suicide, finally "ended his life by breathing the vapor of burning charcoal." Hannibal (247-183 B. C.) put the inhabitants of Nuceria to death by "coal vapor." Since that time accidental deaths and suicides have been rare. Most of the deaths in recent years have been due largely to the more extended use of illuminating gas as a source of heat and power, also to the rapidly increasing use of the internal combustion engine whose exhaust always contains carbon monoxide. The number of deaths from illuminating gas have been steadily dropping in the last few years due to the more extended use of electricity as a means of illumination.

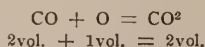
TABLE I
DEATHS DUE TO CARBON MONOXIDE
POISONING IN COOK COUNTY

1917	1918	1919	1920	1921	1922	1923
470	479	518	386	237	214	261
1924	1925	1926	1927	1928	1929	1930
412	320	403	375	398	237	310

Carbon monoxide when pure is nearly insoluble in water, colorless, tasteless, and a practically odorless gas, this later physical property making it dangerous as a source of poisoning. The density compared to air is 0.967.² It can be com-

pressed into a liquid and a solid. It has a coefficient of solubility of 0.0243 at 15°C.

Carbon monoxide burns with a blue flame, two vols. of carbon monoxide uniting with one volume of oxygen to form two volumes of carbon monoxide.



Under the ultra violet rays carbon monoxide becomes formic acid. The alkaline hydroxides change it to the formates.



CO unites Cl forming phosgene which was used as a toxic war gas and has also caused industrial poisonings.

Carbon monoxide is produced at the electrodes or from the charges of electric furnaces. In electric furnaces having limestone linings the carbon dioxide is reduced to carbon monoxide at the heated electrodes; the gas escapes unburned, producing characteristic symptoms. The most common sources of carbon monoxide, with the exception of its marked formation during a severe lightning storm, are stoves, grates, salamanders, domestic and industrial furnaces, distillation of oil, gas engines, fumes from explosions, burning x-ray films, smouldering ashes and mine coal, natural and artificial gases. It is formed whenever incomplete combustion of carbon occurs, such as flames on besooted surfaces and low burning oil lamps. Using an intermittent aspirator to imitate the smoking of tobacco, I found that the carbon monoxide from the inhaled smoke from cigarettes was from 0.01 to 0.26% of the tobacco and paper consumed; from cigars 0.027 to 0.15% and from pipe tobacco .027%.³

Enormous quantities of carbon monoxide are daily produced in the manufacture of illuminating gas, producer gas and water gas. In the city of Chicago during 1930 there were 3,724 miles of pipe used for the transportation of 110,000,000 cubic feet of gas per day, having the average composition of 8 to 9 per cent. carbon monoxide. The proportion of carbon monoxide differs greatly in domestic and industrial gases, varying between 4 and 30%; in coal gas 4 to 10%, 30% in water gas, and 20 to 30% in producer gas. The exhaust of an automobile may have from 1.5 to 16% of carbon monoxide.⁴

The greatest percentage of carbon monoxide

asphyxiation is through the medium of illuminating gas, which has the characteristic odor of the hydrocarbons accompanying the gas. This familiar odor does not prevent many accidental poisonings, as the odor may not be perceived by those in deep sleep, or by a person with a defective sense of smell.

It is commonly believed that during the winter months the percentage of carbon monoxide in the illumination gas increases and that is the chief reason for more deaths from gas poisoning. The percentage of carbon monoxide does not, however, increase during the winter months. Table 2. gives the number of deaths from gas asphyxiation for each month for one year and the percentage of carbon monoxide. With the present plan of using natural gas (which does not contain carbon monoxide), mixed with coke oven gas the danger of carbon monoxide will be greatly increased unless some tracer gas is added to warn the public when it escapes. The danger of explosion is also increased with the proposed gas mixture.

TABLE 2
ASPHYXIATION IN COOK COUNTY

	Carbon Monoxide	Water Heaters	Acci- dental	Undeter- mined	Sui- cides	Homi- cides	Totals
1916	Per cent	Deaths					
Jan.	23.9	1	16	9	23	5	54
Feb.	26.4	1	13	7	13	0	34
March	24.1	0	18	7	21	0	46
April	23.9	0	19	8	19	0	36
May	27.2	2	14	8	23	0	47
June	26.2	2	11	2	12	4	31
July	23.0	0	5	12	20	4	41
Aug.	24.2	0	5	4	12	0	21
Sept.	22.4	0	13	8	26	3	50
Oct.	22.6	0	23	9	17	1	50
Nov.	29.1	0	7	5	20	0	32
Dec.	31.0	0	14	6	13	2	35

The more extended use of gas in the homes, during the winter, the closed doors and windows, preventing proper ventilation if there are leaky pipes or loose connection, accounts for the increased number of gas asphyxiations. All gas stoves, plates and heaters should be connected by metal instead of rubber.

From records of death from carbon monoxide poisonings while I was in the coroner's office of Cook County, I found 52 causes for the inhalation of the gas, the chief one of which was the open jet, next the open burner of the gas plate or range, and third the boiling water from a vessel putting out the flame.

TABLE 3

	1918	1919
1. Open jet, cause of its being open unknown....	86	133
2. Open burner of gas plate or range.....	48	44
3. Open burner of range, vessel boiling over....	24	20
4. Deceased intoxicated	19	..
5. Disconnected hose	17	29
6. Defective fixture	14	5
7. Lighted gas heater.....	10	6
8. Coal stove gas.....	8	1
9. Hot water heater.....	7	11
10. Gas heater	6	6
11. Defective rubber hose.....	5	14
12. Automobile motor running in closed garage...	5	2
13. Clothing hanging on fixture.....	5	..
14. Wind blew light out.....	4	3
15. Coke gas from furnace.....	4	3
16. Disconnected pipe.....	4	2
17. Broken supply pipe.....	4	1
18. Gas frozen	4	1

ward in these people that survive severe or mild intoxications.

Haldane⁸ believes that all the effects of carbon monoxide can be referred to lack of oxygen, the symptoms increasing with the saturation of the blood. Mice were kept alive on exposure to 200 to 300 times the fatal dose of carbon monoxide in the presence of oxygen under 1 or 2 atmospheres of pressure. Haggard⁹ maintains that there is no direct toxic action of carbon monoxide on the heart, for if respiratory failure is prevented by means of administration of 8 to 10 per cent. carbon dioxide, the CO combination with the hemoglobin may rise to an unusually high percentage without any evidence of impairment of the heart function. Death in cases of carbon monoxide asphyxia is due to the failure of respiration of the nature of a fatal apnea vera. Haggard further states that the lack of oxygen resulting from the formation of CO hemoglobin induces excessive breathing which in turn results in an abnormal loss of carbon dioxide followed by failure of respiration. The increasing anoxemia from this cause speedily results in the development of heart block through its various stages.

Regardless of what may be the belief as to the nature of CO poisoning, whether CO causes only a simple asphyxia or as a toxic agent, it is well recognized that where carbon monoxide has been inhaled for a considerable time the damage done to the nervous tissue, especially the vital nerve centers, is very serious. Some observers declare that carbon monoxide exercises a specific action upon the nervous mechanism of the heart which has been attributed to its specificity for the nerve centers.

The period of time during which the presence of carbon monoxide may be detected in the blood does not depend alone upon the duration of the period of exposure or its intensity, but upon individual peculiarities as well. In most cases, however, the length of time during which CO may be detected depends largely upon the period of exposure.

The diagnosis of carbon monoxide is often very easy, sometimes difficult and never positive unless a chemical examination of the blood has been made. The symptoms may simulate many other conditions. The reason for this is chiefly in the rate of absorption and the extent of the

Carbon monoxide may be freely respired, its presence in air not being manifested by either irritation to the air passages or by affecting the sense of smell as is noted with sulphur dioxide gas used in mechanical refrigeration. However, the moment carbon monoxide comes in contact with the blood, by diffusion, it unites with the red pigment of the blood corpuscles, forming a definite compound, carbon monoxide hemoglobin exactly replacing the oxygen volume for volume. According to the research of Nicloux⁵ one volume of carbon monoxide acts like 220 volumes of oxygen. The corpuscles are not dead. All it needs is oxygen under sufficient tension to displace the carbon monoxide. Hill and Barcroft⁶ have shown that carbon monoxide enters into combination more readily when a little oxygen is present than when it is completely absent. In Barcroft's⁷ experiments with carbon monoxide poisoning, he found that an animal at rest could breathe an atmosphere containing a low percentage of CO and yet the hemoglobin in the spleen pulp remains perfectly free from the gas, although the blood in general circulation reaches a 20% saturation. It is evident that during this period the blood must pass from the arteries to the veins by some other route than through the pulp. During exercise, on the other hand, the hemoglobin of the pulp became charged with CO in the space of five minutes. The spleen, therefore, appears to be a place where a reserve of red blood corpuscles may be stored until some emergency arises demanding an increased oxygen transportation. Death by carbon monoxide is so common and so much has been written upon it from a toxicological standpoint that we have neglected to study and report in the literature what happens after-

combination of the hemoglobin with the gas. When the volume of breathing is increased by muscular exertion the absorption of gas is proportionally increased. The smaller or younger the individual the quicker the saturation of the blood by carbon monoxide. In the resting stage the volume of breathing varies between individuals as a function of the surface area of their bodies. Small individuals succumb to carbon monoxide more rapidly than large individuals, for the volume of their respiration is greater in relation to the volume of their blood. This fact is made of practical use in the examination of the air of mines, when mice or canaries are carried into the vitiated air as living signals of dangerous amounts of gas. Men breathing the same atmosphere have about twenty times as long a stay in the contaminated air as the small animals before getting into a like condition, as men have one-twentieth the skin surface of the small animal per unit of body weight.

TABLE 4
PERCENTAGE SATURATION OF THE BLOOD
WITH CARBON MONOXIDE AND CORRESPONDING PHYSIOLOGICAL EFFECTS

Per Cent. of Hemoglobin in Combination with Carbon Monoxide	Physiological Effect
10	{ No appreciable effect except shortness of breath on vigorous muscular exertion.
20	{ No appreciable effect in most cases except short wind even on moderate exertion; slight headache in some cases.
30	{ Decided headache; irritable; easily fatigued; judgment disturbed.
40-50	{ Headache, confusion, collapse and fainting on exertion.
60-70	{ Unconsciousness; respiratory failure and death if exposure is long continued.
80	{ Rapidly fatal.
Over 80.....	{ Immediately fatal.

The onset of symptoms may be sudden, but usually there are warning sensations as headache, throbbing of the temples, ringing in the ears, faintness, dizziness and vomiting. The face becomes red and there is loss of memory, vertigo, fainting, anesthesia and loss of all spontaneous power of movement. The heart action is at first violent, then weak, slow and arrested. The body temperature is lowered. Recovery is sometimes rapid. As a rule, however, there is a slow return to consciousness with more or less prolonged headache and nausea. When the gas

itself does not kill, apoplexy or softening of the brain may follow.

According to Becker and Schwerin,¹⁰ the sequelae divide themselves into four groups: 1. Primary gangrene with blisters and decubitus. 2. Primary hemorrhages, as of the lungs, apoplexy, and the like. 3. A persistent distention of the capillaries and other vessels in which the symptoms are shown in the skin, red nose, red spots not unlike those caused by frostbite. 4. A deep-seated disturbance of the regeneration of all organs, especially of the vascular walls and the ganglion cells of the nervous system, evidenced by secondary hemorrhages, idiocy, imbecility, chorea, ascending paralysis, etc.

Evidence of injury to the lungs is noted in a number of victims of gassing who have an excess of fluid in the respiratory tract, frothing at the mouth, in the early stages and the appearances of rales in the lungs and later bronchopneumonia. The work of Hill and Semerak¹¹ upon the brain emphasizes the relation between carbon monoxide poisoning and the subsequent development of nervous and mental disease. From the examination of 32 brains they came to the conclusion that the damage to the lenticular nucleus depends upon the age of the patient, the degeneration of the vascular system, pre-existing disease of the brain, duration of life after the accident and the amount of gas inhaled. Briand¹² says that the loss of memory is common as a result of CO poisoning. It is not slow and progressive as in alcoholic dementia, but comes on suddenly. Oliver¹³ reports blast furnace men who develop incomplete loss of power in the limbs and later an affection of speech after the acute symptoms have disappeared.

In the acute stage a diagnosis of food poisoning, strychnine poisoning, diabetes and alcoholism have been made in cases of CO poisoning. In fact, the symptoms are so varied that a physician is reminded of disease of the brain, spinal cord, lungs, kidneys, liver and skin. As many cases have persistent vomiting, a few have convulsions, some are in coma, a few have delirium, and 20% have glycosuria, a faulty diagnosis cannot always be criticized.

Chronic poisoning by carbon monoxide has received the attention of many observers in recent years. There is very good evidence of this

form. Accumulated cases show that it is the result of being in a constantly contaminated atmosphere. The symptoms are described as an alteration in the digestion, diminished vigor, gray color of the skin, coated tongue, loss of memory, diminution of the psychic powers, and occasional convulsions. The pathologic findings of autopsies have shown, in some cases, fatty degeneration; in others, pernicious anemia.

Haines, Karasek and Apfelbach,¹⁴ in their investigations of the effects of carbon monoxide, found that workmen exposed frequently to the gas in metallurgical establishments in a large majority of cases developed a considerable increase of red corpuscles above the normal, the number in one case examined reaching 9,000,000. The amount of hemoglobin was also usually above normal. These investigators attribute the increase in red cells and hemoglobin to a protective effort on the part of the system.

Treatment. This consists in taking the person at once out of the poisonous atmosphere into fresh air, and in inducing artificial respiration as rapidly as possible; the giving of oxygen under slight pressure, enough to distend the cheeks, and compressing the lungs, is considered one of the most, if not the most efficient methods of restoring the person to life. The elimination can be hastened by the inhalation of oxygen and 5% carbon monoxide.

Postmortem. Sudden death by carbon monoxide may produce very few changes, or if the patient lives for a short time after exposure, only a careful examination of the blood will reveal the presence of the gas. Where the blood is well saturated with the gas the surface of the body is deeper red than other parts. The most characteristic change is the bright cherry red blood, usually fluid and coagulating slowly, present in the arteries, veins and all of the tissues. When death occurs rapidly from cyanid poisoning, the blood is also bright red, but the color is not as permanent as in gas poisoning. If the gas poisoning be prolonged, small hemorrhages are present in the pleural cavities, with pulmonary edema and bright red froth in the air passages. Small punctiform hemorrhages may be found in the gastric and intestinal mucosa, great omentum and in the leptomeninges under conditions difficult to explain except under carbon monoxide. As previously mentioned a very character-

istic change in prolonged carbon monoxide poisoning is the occurrence of punctiform hemorrhages and softening in cortex and central nuclei of the brain, notably with two internal segments of the lenticular nucleus. Where life has been prolonged the skin may show herpes, blebs, and pemphigus, followed by gangrene. The kidneys may show fatty degeneration and necrosis in the convoluted tubules.

CARBON MONOXIDE AND PRIVATE GARAGES

The number of deaths caused by inhalation of carbon monoxide from automobile exhausts in closed garages is increasing. In six years I collected 63 deaths.¹⁵ Every day during the winter months the lay press contains reference to deaths in garages in some part of the country. As the average composition of the exhaust gas by volume is 6.03%¹⁶ only a few minutes are required to obtain a toxic dose. Yant, Jacobs and Berger¹⁷ give the percentages of carbon monoxide in the air of a closed garage of 2,950 cubic feet capacity in which a five passenger car was running at 200 revolutions per minute. In twenty-five minutes the air contained 1.31%, in sixty minutes, 2.10%. Public garages are more of a menace to the workers in the garages than to the public. Kranenberg¹⁸ reported in 31 different garages that in 69.5% of the workmen who submitted to the blood test carbon monoxide was found. The concentration of carbon monoxide in the air of city streets other than automobile boulevards is insufficient to constitute a serious public health hazard. The Chicago Department of Health¹⁹ reports: "At times the air of automobile boulevards contains enough carbon monoxide to menace the health of those exposed over a period of several hours, particularly if their activities require deep and rapid breathing." Death from carbon monoxide in private garages is absolutely preventable. If the poisonous gases from the exhaust are conducted to the outside air by means of a pipe or hose in the door to which the automobile exhaust can be attached. In the absence of this arrangement the large door of every garage should be left open so that the exhaust gases can be discharged directly into the outside air. If our patients could be educated to ventilate their homes by opening the doors and windows when they first

smell gas many of the deaths listed in Table 3 could be eliminated.

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INGUINAL HERNIA IN EARLY INFANCY WITH A REPORT OF THREE STRAN- GULATED INGUINAL HERNIAE OCCURRING IN NURSLINGS

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Inguinal hernia is not an uncommon finding in infants. As a congenital lesion it is frequently observed in the new-born child, and as a matter of course every new-born child should be examined at the time of birth for signs of hernia.

In very young infants, strangulated inguinal herniae are uncommon and the performance of herniotomy in these little patients is always interesting and a matter for record. I have recently treated three such cases, the particulars of which are given in the short histories that follow.

Case 1. Referred by Dr. Echerer. An infant, aged ten days, is suddenly taken sick; painful, walnut-sized,

irreducible swelling in the left inguinal region; vomiting; absolute constipation; fever. Incision; hernial sac contained a moderate amount of blood-stained fluid. Following the application of compresses dipped in hot saline solution, the herniated portion of gut, which was slightly purplish, resumed its normal color and was returned to the abdominal cavity; neck of sac trans-fixed; sac resected; only two sutures were needed to close operative wound; recovery.

Case 2. Referred by Dr. Frances Ring. Infant, thirteen days old; a pigeon-egg sized swelling, not present at birth, suddenly appeared in the right groin twenty-four hours previous to admittance to the hospital. Swelling is tense, painful, irreducible; surrounding area shows signs of inflammation; mass did not transilluminate. Patient vomits almost continuously; vomitus offensive in odor, fecal in nature. After incision of the skin and other overlying hernial tissues, it was seen that the herniated loop of gut had a gangrenous appearance; constricting ring divided. The gut, after the application of warm compresses, resumed its viability and was returned to the abdominal cavity. Operation for radical cure. Recovery.

Case 3. Male baby, thirty-six hours old. Referred by Dr. Goldberg. Painful, tense, tender, irreducible swelling along right inguinal canal and extending into the scrotum. Child vomited once. Under ether anesthesia, the swelling was incised and it was then seen that the herniated loop of gut was strangulated at internal ring, but was freed and returned to abdominal cavity; sac resected, then sutured. Closure of abdominal wound with gut; skin approximated with Michel clips. Uneventful recovery.

Types of Inguinal Hernia. Congenital inguinal hernia may be unilateral or bilateral, intra- or extra-funicular, associated or unassociated with other developmental defects. In the intra-funicular type, the sac is found included in the fibrous sheath common to both testicle and spermatic cord. In the extra-funicular type, the sac is outside of this sheath. The intra-funicular herniae are the more numerous and include the congenital herniae. Inguinal herniae are classified according to the location of the hernial sac into properitoneal, interstitial or intermuscular, bubonocoele, scrotal, labial, and so forth; according to the nature of the hernial contents, into enterocele, entero-epilocele, into hernia of the urinary bladder; of the appendix vermiformis, and so forth, according to the anatomical state of the hernial contents into reducible, irreducible, inflamed, incarcerated and strangulated. Inguinal herniae are also classified, according to the orifice of escape, into direct and indirect. Direct inguinal hernia is extremely rare in childhood. In 430 operations for inguinal hernia in

children, reported by Andrei, there were only two of the direct variety, both bilateral.¹ Coley states that there was not a single case of direct hernia in children at the Hospital for Ruptured and Crippled Children. Indirect hernia is that commonly observed.

Etiology of Congenital Inguinal Hernia. The most commonly assigned cause of inguinal hernia in infants and in young children is a persistent or non-obiterated processus vaginalis peritonei or funicular process (Nuck's canal). Its homologue in the female is a tube of peritoneum which descends from the uterus into the inguinal canal and which sometimes persists long after birth. The processus vaginalis peritonei appears about the third month of intra-uterine life.² Complete obliteration of this sac occurs by approximation of its walls and usually, but not in all individuals, take place at about the time of birth. Camper found 45 per cent. of bilateral persistence and 31.5 per cent. of unilateral persistence, the right side predominating. Hertzler believes that a patulous canal can be demonstrated in about 10 per cent. of all infants. There is no exact information as to what proportion of infants are born with this patulous peritoneal diverticulum.

A potential hernial sac may persist into adult life; may be present in the absence of a hernia; may exist for years without any evidence of its presence. Jaboulay and Patel cite Ramonède as having found a patulous canal in thirty-two of 215 adults from fifteen to eighty years old. In this connection it should be stated that though developmental defects do not cause herniæ, they undoubtedly predispose to hernia formation. Associated with hernia, one frequently finds one or more anatomical anomalies—an abnormally long mesentery, an imperfect development of the internal oblique muscle, an abnormally large slit in the transversalis fascia opposite the internal ring, an enlarged external ring, and so forth.

Russell,⁵ in 1899, stated that all oblique inguinal herniæ in children and in adults are congenital and that they are determined by developmental variations in the anatomy of the scrotal peritoneum, such as the non- or incomplete closure of either the funicular or testicular portion of the processus vaginalis or the involvement of either of these portions between the

various layers of the abdominal wall. He reiterated this opinion in 1922.⁵

Obliteration of the patent processus vaginalis begins at the external ring and one can, by careful dissection, almost always discover the fibrous remains of this peritoneal sac. As a rule, the sac is intimately associated with the tunica vaginalis and cord. Inguinal herniæ due either to the persistence of the processus vaginalis or to other preformed peritoneal pouches or diverticula are true congenital herniæ, properly so-called. Acquired herniæ differ from the preceding in that the sac is not preformed but is derived from the parietal peritoneum around the deep inguinal orifice.

The following are important contributory etiological factors: Weak musculature, such as is present in poorly nourished children; weak areas suddenly and repeatedly exposed to concentric compression by the violent contraction of all the abdominal muscles, the diaphragm and the pelvic muscles included; greater abdominal pressure than the particular wall can withstand, as may occur during straining at urination because of a tight prepuce, during paroxysms of cough, and so forth.

Statistics of Age, Sex and Site. Jaboulay and Patel tell us that inguinal herniæ form 83.2 per cent. of all herniæ in the male at all ages; they form 43 per cent. of all herniæ in females. Coley in "Keen's Surgery," Vol. 4, states that the proportion of herniated males to herniated females is 4:1. In 1038 operative cases in young children,⁹ the proportion of males to females was nearly 4:1.

Macready, in investigating 17,538 inguinal herniæ in males, found that 3158 of these first appeared during the first year of life, 670 between the first and fifth years and 390 between the sixth and tenth years. Inguinal hernia appears to be about five times more frequent in the first year than during adult life.

Paterson and Gray report that in 130,243 admissions of children under three years of age to the Hospital for Sick Children, London, England, during 1919 to 1924, there were 1018 herniæ of all kinds. Of these, 773 were simple inguinal hernia. Of these 773 inguinal herniæ 696 were in males and 77 in females, a proportion of about 9:1. In Esten's¹⁰ 101 radical operations for inguinal hernia in eighty-five young

patients under two years of age, eighty-two were males and three females. These were hospitalized cases calling for radical operation and the proportion of males to females in such circumstances is likely to be much higher than in ordinary cases.

Regarding the site of the hernia, in Paterson and Gray's 773 cases the hernia was right sided in 477 (62 per cent.), left sided in 155 (20 per cent.) and bilateral in 141 (18 per cent.). These percentages were about the same for each sex. The percentages were 64, 23 and 13, respectively, which agrees fairly well with Paterson and Gray's figures.

Inguinal hernia is more frequent in males than in females probably because of developmental differences between the true inguinal canal and Nuck's canal. To explain the great incidence of right sided hernia, it has been suggested that the right processus vaginalis closes at a slightly later date than the left.

Evolution. The opinion is expressed by many observers that almost all herniæ in infants and children close spontaneously if the intra-abdominal pressure is lessened sufficiently to keep the sac empty. The sac of a hernia may become untenanted; nevertheless, it remains a sac and in the absence of obliteration, it remains a potential site for hernia.

Uncomplicated hernia in children rarely causes death.¹² In children with hernia not operated upon, the mortality varies according to different writers from 0.3 to 1.5 per cent. In simple uncomplicated herniæ, unless the operative mortality can be kept as low as these figures, operative measures are not justified. The operation itself is not to be feared; it is the shock and such surgical accidents, as lung, intestinal and other complications, that deter the surgeon.

With careful asepsis, well understood technic and avoidance of post-operative wound contamination by urine or feces, the operation for radical cure almost always secures complete and permanent recovery. The great majority of recurrences following operations for the radical cure of hernia take place within the first six months and nearly all within the first year.

In extensive observations of infantile hernia in the Hospital for Sick Children, London, it was found that there was a spontaneous disappearance of inguinal hernia in 185 of 209 patients

not operated on. The percentage of spontaneous disappearance was higher in females than in males (37 per cent. and 22 per cent., respectively⁸). Spontaneous disappearance occurs usually before the age of one year, but in some cases the hernia was found to recur up to the age of three years. Disappearance seems due, undoubtedly, to occlusion of a persistent processus vaginalis or Nuck's canal.

DIAGNOSIS

The diagnosis of true inguinal hernia even in a very young infant rarely offers any difficulty and, in general, its presence is self-evident. Usually the swelling is small and confined either to the inguinal canal or to the inguinal canal and the upper part of the scrotum. "When one finds, in the locality where hernia usually occurs, a rounded or oval tumor which gives an impulse when the child coughs, laughs heartily or cries, which is larger when the child stands and disappears or is easily pressed into the abdominal cavity when it lies down,"¹³ the diagnosis of hernia is justified. If the hernial sac contain intestine, the reduction of its contents is likely to be accompanied by a gurgling sound which is pathognomonic.

Inguinal hernia must be differentiated from encysted hydrocele of the cord, from hydrocele of the tunica vaginalis, of the funicular process of Nuck's canal, and from cysts of the hydatid of Morgagni. An undescended testicle often appears in the inguinal canal and the condition may be unsuspected if the scrotum be not carefully examined. Rectal infection may be associated with enlarged inguinal lymphatic glands.

An inguinal hernial sac in an infant is sometimes translucent and in this regard not differentiable from a hydrocele. Ashurst²⁰ reports a case which he had diagnosed strangulated hernia. The salient symptoms were pain in the right groin, vomiting, constipation and fever. On operation, the condition was found to be a hydrocele of the cord.

Strangulated inguinal hernia is very rare in the child, as in them an incarcerated hernia is usually easily reduced. Estor¹⁴ found that in nine large European clinics no case has been observed. Wetherell¹⁵ cites Herzfeld¹⁶ as having observed only three cases of true strangulation in a series of 1500 consecutive operations for hernia in children. Mac Lennan found four

strangulations in 1038 herniotomies. They all recovered. In 1200 cases of inguinal hernia in children treated in the Hospital for Ruptured and Crippled, New York, Fuld¹⁷ saw only one case of strangulation. Krause¹⁸ considers that 10 per cent. of infantile herniæ are strangulated. Paterson and Gray found eight cases of strangulation in 1018 herniæ in children under three years old. While these figures are greatly diversified, yet they suffice to show that strangulated hernia is a rare occurrence in infancy and in early childhood. Most authors consider the rarity of strangulation in childhood explainable by the feeble resistance of the tissues which surround and form the hernial sac. Estor reported fourteen incarcerated herniæ in 101 radically operated cases at the Bonn Surgical Clinic; this must not be considered a normal proportion, as most of these children were hospitalized on account of complications, including strangulation.

Strangulation may occur at any age. Krause considers that it occurs mostly during the first six months, and 125 of 225 cases collected by Estor occurred in infants aged six months or less. Herzfeld considered that strangulation usually appeared between the sixth month and the fourth year, rarely between the sixth year and puberty.

A number of cases of operation for strangulated inguinal hernia in very young infants have been reported. In Griffith's¹⁹ case, the patient was five days old; in Stern's²⁸ case, ten days; in McLaurin's²⁷ case, fourteen days, in Jago's¹¹ fourteen days; in Jopson's²⁰ case, two weeks; and the youngest patient in MacLennan's series of 1038 herniotomies was the same age; in Fuld's case, fourteen days; in White's²¹ case, sixteen days; in Collin's²² case, eighteen days. Collins states that the youngest patient on record was that of Woodbury²⁴ operated on by Andrews in 1874. The infant was only forty-five hours old. The hernia in this case was the size of the child's head; it contained the greater part of the large intestine. Gruneck²⁵ recently reported a case of strangulated hernia in a prematurely born child. The operation was performed without anesthesia and was successful. I find no similar case mentioned in literature, but Cardier²⁶ mentions a case of bilateral irreducible hernia in a child at term.

Opinions vary in regard to the relative fre-

quency of strangulated herniæ in children compared with that of adults. Estor estimated it as 1:62; Frickhoffer²⁷ at 1:107; Stern and Brunier²⁸ at 1:108.

The symptoms of strangulation in infants parallel those of the same accident in adults: Nausea, vomiting, constipation, tenesmus, and so forth, are usually present. The cardinal symptoms peculiar to infants are violent and uncontrolled screaming, recurrent vomiting, retention of urine, and the facies peculiar to obstruction and rapid collapse.

The sac most usually contains small intestine only, occasionally the cecum and appendix. In Seaton's⁸ case, the strangulated hernial sac contained a gangrenous appendix. The urinary bladder may form the inner wall of the hernial sac. Collins and Watson give small intestine as the only contents of the sac in 85 to 90 per cent. of incarcerations, respectively. Collins states that the cecum and appendix are found in the sac in about 7 to 20 per cent. In Woodbury's case, child forty-five hours old, the large intestine was in the sac. In females, the ovary, the fallopian tube or the tube and ovary, in part or in their entirety, may be the sole or part contents of the hernial sac. In eighteen of the 1038 herniotomies reported by MacLennan, vestigial rests were found in the sacs or connected with them; in one case, the hernia was bilateral and there was an adrenal gland in each sac. The vestigial remnants in fourteen of the cases were cortical adrenal tissue. Watson states that the mortality of untreated strangulated hernia varies from 37 per cent. up to twenty-four hours to 78 per cent. after seventy-two hours.

TREATMENT

Wetherell states that until the beginning of the present century, conservative measures alone were employed in the treatment of inguinal hernia of infants. The employment of the truss in hernia of young children is comparatively recent. The underlying reasons for the non-employment of truss treatment were the difficulty of fixing a truss in the case of a very young child and the fear of gangrene and eczema.

In the absence of distinct indications to the contrary, treatment by truss suffices until the child is old enough to undergo a herniotomy.

Opinions vary in regard to the most suitable age for operation.

Broca²⁹ orders a rubber truss and advises operation only in herniæ not kept fully reduced by this type of truss. Hertzler states that twenty-five per cent. of infants treated by a truss are temporarily cured of their hernia by it, that is to say, the searing of the truss may be discontinued after a time. Hertzler, however, thinks that there is no physiologic or adapted pathology of the peritoneum to warrant the hope that the use of a truss will cause a hernial opening to become obliterated. The truss may succeed in keeping the rupture reduced; but it causes some pressure atrophy on the compressed muscle fibers. Often trusses obscure but do not cure herniæ. "The well-known skein-truss more often hides than retains the hernia." (Hertzler.)

Coley and Bull, with an experience of 1500 cases, advocate operation in uncomplicated hernia after truss treatment of from one to two years has proved unavailing.

Watson agrees with Coley, Buford³⁰ and others that it is not advisable to operate before the fourth year unless it is absolutely necessary. Martin, of Paris,³¹ advises waiting until the fifth or sixth year in cases of inguinal hernia where there is simple persistence of the peritoneo-vascular canal; with the sac usually reducible, operate towards the end of the first year; when the sac is irreducible, operate in the absence of general contra-indications.

Paterson and Gray, with an experience of nearly one thousand cases in young children, state that the usual procedure in the Hospital for Sick Children, London, is to apply a rubber truss until after the age of one year, when the child can better withstand surgical and anesthetic shock.

The rubber truss is irritating to an infant, especially, as it is difficult to keep the vicinity dry. The skein wool knotted truss is satisfactory but it requires skill to make and must be changed several times each day. Rosenberg³² has recently described a truss made of a triangular pad stuffed with absorbent cotton. To each corner of the pad there is attached a muslin tube about 15 cm. long and these are tied in the same way as the wool truss. This truss also may have to be changed a few times each day.

It was not until about the beginning of the

present century that the majority of surgeons everywhere agreed to the necessity of a radical operation for hernia in the very young child. Krecke³³ thinks the fear of operating on infants and young children is entirely groundless. Infants can undergo herniotomy in their first year and the mortality in large hospital clinics is only about one per cent. Other factors being equal, select the operation that is; (a) simplest as to technic; (b) safest as to life. Rapidity of operating and careful dissecting without bruising of the tissues contribute to success.

Operative relief is indicated:

1. In all inguinal herniæ that are not fully controlled by truss-wearing because, in the presence of this condition, the hernia constantly tends to increase in volume. Hernia is aggravated by crying, straining. Even if a patent canal close spontaneously, there remains a weak spot which at any time may yield to any unusual intra-abdominal pressure.

2. In all inguinal herniæ that are difficult to reduce.

3. In all inguinal herniæ that are associated with reducible hydrocele or fluid in the hernial sac.

4. In all irreducible inguinal herniæ.

5. In all incarcerated inguinal herniæ.

6. In all strangulated herniæ, unless the patient is moribund. Do not give cathartics in strangulated herniæ. Empty the lower bowel by aid of enemas. Taxis is injudicious and may be harmful. If a strangulation has existed for some time, attempts at taxis are more dangerous than operation. Taxis is neither a simple nor an innocent procedure, as even moderate manipulation may contuse, perforate or rupture the gut wall. Taxis may lead to "reduction en bloc" or to reduction into the internal portion of a bilocular sac. Any hernia which suddenly becomes larger, irreducible, tender and tense, accompanied by local and abdominal pain, followed by nausea and vomiting, is to be considered a strangulated hernia and calls for immediate operation. Early operation saves the patient: (a) From intestinal resection; (b) from generalized peritonitis; (c) from acute toxemia. When a hernia suddenly becomes larger, irreducible, tense, tender and is accompanied by local and abdominal pain, nausea

and vomiting, there is a call for immediate operation. Delay is to be condemned.

Wetherall states that in a series of 1000 radical operations by Herzfeld in infants and young children, there was only one operative death. Early operation gives a relatively good prognosis.

MacLennan operated on 522 cases and Spitz²³ on 230 cases with no deaths.

Stiles³⁴ reports 360 cases with five deaths and four recurrences and Kovacs³⁵ 232 cases with one death and one recurrence.

Gatti³⁶ found the mortality rate following operation in children under six years old was 1.45 per cent. and in the case of children from six to twelve years old, 0.71 per cent.

In Esten's series of 101 radical operations, in the Bonn Surgical Clinic, in children under two years old (the youngest fourteen days), there were only two deaths and one recurrence. Fourteen of these were incarcerated herniæ, and in seventy-five cases a Bassini operation was done. The mortality in the 225 cases collected by Estor up to 1905 was 23 per cent. but many of these were old cases and the mortality has since then been vastly improved. Most writers agree that even in strangulated cases the mortality should not exceed 10 per cent. In 1027 radical operations recently reported by Mambrini³⁷ for inguinal hernia, ectopic testicle and hydrocele, in which either a complete or modified Bassini operation had been done on young children, the operative mortality was only 0.84 per cent.

There were four recurrences in the series of 1038 cases reported by MacLennan and four in 564 cases reported by Paterson and Gray. The recurrence in some cases was due to the breaking of catgut sutures.

Technic. The first and essential principle underlying all operations for radical cure of hernia is the complete removal of the hernial sac. With the finger separate the peritoneum through a zone all around the internal ring so that the sac is completely isolated from the muscles for at least 1 cm. The sac is ligated or sutured at its neck, then resected. The second essential is to rectify any of the various anatomical defects that may be present and to carefully repair the musculo-aponeurotic fascial layers of the abdominal wall. There must be an adequate reinforcement of the defective abdominal wall. The

use of heavy suture material does not add to the security of the operation, but rather predisposes to trouble by forming abscesses about the suture.

In many cases of simple hernia, uncomplicated hernia, radical operation will result in certain cure. It can be performed with safety. It forestalls the occurrence of strangulation. Operative injury to cord and vas is purely a technical error. High ligation of the neck of the sac without opening up the inguinal canal and suturing of the muscles will suffice. This is especially the case if a short patent canal is the only factor. In every case, note the type of sac present and the nature of the sacular contents. See if there be: (a) abnormality in the descent of the testicle; (b) any developmental rests; (c) if the urinary bladder forms the inner wall of the sac; (d) if phimosis co-exists. Phimosis should be corrected either at the time of the herniotomy or shortly thereafter. If the content of the hernial sac be an inflamed appendix, remove it. Seaston,⁸ operating on an infant six weeks old, for strangulated inguinal hernia, found the hernial contents to be a completely gangrenous appendix. He removed it. Recovery.

Many surgeons, however, prefer the Bassini radical operation or some of the many modifications of it. It is well to keep in mind that speed and smoothness come from uniformity of procedure, and such uniformity should be cultivated. Select an operation which in its aim, in its method and its results is practically perfect. Muscles and fascia will unite if approximated without the intervention of loose areolar tissue. Fuld, in his patient, made a two-inch incision parallel to Poupart's ligament and about a quarter-inch above it and exposed the sac. The exposed sac was grasped with artery clamps and the infundibular fascia which surrounded the sac was peeled off and the cord carefully separated from the sac. The sac was opened carefully to avoid injury to contents, and after reducing the contents the sac was obliterated. If the contents are discolored, hot saline compresses should be applied. Resection of the intestine is not well borne by infants.

Soresi³⁸ gives the details of a more elaborate technic which, to us, appears needlessly complicated. The incision is started at about 2 to 3 cms. lateral to the internal ring and carried down to it. The fibers of the internal oblique are

separated by blunt dissection at about 1 cm. above the internal ring. The peritoneum is opened and the peritoneum opening of the sac is exposed at the external ring. The sac is dissected to its neck, removed and the opening in peritoneum closed and sutured. The vas and vessels of the cord are separated and a layer of transversalis muscle and fascia are sutured to the internal oblique muscle. The suture of the transversalis fascia offers a smooth inner wall and prevents the properitoneal fat from insinuating itself forward. This strengthens the protection of the structures against hernia at the internal ring and reformation of the sac is prevented.

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PERNICIOUS ANEMIA AND THE EMOTIONS

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The clinical symptom-complex we know as pernicious anemia has rapidly become less terrifying since the memorable and fairly recent work of Minot, Murphy, Koessler, Maurer and allied workers. Less terrifying in that the periods of remission of the disease are longer and under a fair degree of dietetic control.

A survey of the literature on pernicious anemia for the last ten years is most interesting because it brings out the emphasis that has been laid on the therapeutics of anemia (with complete justification as results show) but etiologically and pathologically the advance has been far less rapid and less satisfactory. Ten years ago we were just emerging from the surgical era. It had been argued and shown that the palliation which followed a splenectomy was greater than that obtained by blood transfusion. On the basis that one of the functions of the spleen is to destroy the feeble or imperfect and deteriorated red cells, the spleen was removed to stop such destruction; but the argument and the idea of toxic origin persisted with the result that one group of workers had quite a large series of cases in which not only the spleen was removed but also the appendix and gall bladder. Then these operative procedures died out and were almost entirely discontinued while in the words of one surgeon, "It seemed wise to await the verdict of time." Well, time proceedeth while our etiologic ideas are still in a state of flux.

The many theories embrace a multitude of conceptions: it has been considered a deficiency disease, either as an avitaminosis or as a chloride depletion or retention affair, a toxemia from absorption of poisonous amines, an endocrine disturbance, an infestation with protozoa, a bacterial infection with the *Bacillus Colin*, B. Welchii, and B. *Perfringens* being named, and a metabolic disturbance with an increased pres-

ence of unsaturated fatty acids. And thus it is quite evident that the problem is most complicated and a great deal more information must be acquired before we can have a satisfactory conception of the disease and the disturbed physiologic processes it produces while developing. It is with these thoughts in mind as a possible justification that the writer ventures to outline the following cases. As a stroke of good fortune both of these individuals had been under observation previous to the onset of the present condition which permits therefore, a comparative value to be placed on the etiologic factors elicited.

The first case is that of a white male, 42 years of age, whose chief complaint is that of weakness and a diarrhea which is almost continuous; frequent attacks of nausea and vomiting and no appetite which he attributes to a feeling of fullness in the epigastrium. These symptoms date back to an episode four months previous at which time he was held up, threatened with a revolver, hit over the head with the same, kicked and beaten generally. This occurred during the course of his regular employment as a bank messenger while he was delivering a payroll and was attended with much fright. He thinks that his extreme fear and consequent inability to follow orders was misinterpreted by the bandits for resistance and the physical manhandling was a consequence. At this time he was put to bed for several days and it was during this confinement that he experienced his first attack of nausea and vomiting and later diarrhea. At the time of his admittance to the Hospital and examination, he is pale with a peculiar color of the skin suggesting a low-grade jaundice. The sclerae are yellowish and the mucosa is pale. His tongue is fissured and the surrounding areas appear raw. He volunteers the information that he cannot eat tomatoes, pineapples or much salty food, "It hurts my tongue." *Teeth*—Upper incisors bridged in (lost from trauma. Some pyorrhea around the lower incisors. *Heart*—Systolic murmur at the base, loud venous hum in the neck. *Lungs*—Normal. *Abdomen*—Liver palpable; spleen not palpable. *Urine*—Light in color, no albumin, no sugar, no casts. Temperature 99°F. Pulse 84. Respiration 26. His finger nails are pale and he says his hands go to sleep frequently and he has a tingling sensation in the fingers. *Blood examination*—Coagulation is normal but the capillary bleeding time is prolonged. Leucocytes 6,000; erythrocytes 3,150,000; hemoglobin 55%. Anisocytosis +. Poikilocytosis +++++. No platelets. Occasional nucleated red cells present. Examination of the *Stool*—is negative for blood and parasites. This man was put on a diet approximating 1,000 calories containing 120 gms. of liver with orders to increase to 1,200 calories and 180 gms. of liver in 72 hours. Now it is interesting to note that this man had an acute appendicitis just nine months previous to these findings and had, during his stay in the hospital,

three blood examinations with no suspicion of the present trouble being excited. His white count before operation was 19,000. No red cell count was made. In the two succeeding examinations a more thorough report was had with no abnormal findings. The patient went home in twelve days and his recovery was complete and uneventful. His next three blood examinations—during his present term in the hospital—are at 72 hour intervals after the diet is established and are as follows: W. C., 5,500; R. C., 2,900,000; Hg., 45%; poikilocytes and anisocytosis, ++; next W. C., 5,800; R. C., 3,060,000; Hg., 47%; and next W. C., 6,200; R. C., 3,304,000; Hg., 50% with poikilocytosis, anisocytosis and polychromatophilia marked. At this point he was given 500 c. c. of blood from a professional donor and the observation continued. After the transfusion his condition improved quite readily so that we were enabled to increase the diet to 2,000 calories and 220 grammes of liver. After one month of hospital care and observation he was sent home, and after 10 weeks his blood report was satisfactory. The poikilocytosis and anisocytosis had disappeared, and with it the disagreeable symptoms which sent him in for observation.

The next patient is a woman who had been under active treatment two years ago and presented a typical case of pernicious anemia at that time. She had been placed on an appropriate diet, warned of its importance and was under observation at monthly intervals. Now upon presenting herself she looks and acts and feels very much worse. She is 58 years of age, 5 feet 5 inches tall and weighs about 165 pounds. She appears quite pale and has a suggestion of icterus on the sclerae and mucous surfaces. Her blood report now is Hg., 50%; R. C., 1,110,000; W. C., 2,120; Color index, 2.2; anisocytosis, 4 plus; poikilocytosis, 4 plus; polychromatophilia, about 2%; macrocytes, 3 plus; small lymphocytes, 48%; large lymphocytes, 2%; and polymorphonuclears, 50%. A month previous her blood report had been R. C., 4,350,000; W. C., 9,000; Hg., 74%; color index, .86; no anisocytosis, poikilocytosis or polychromatophilia noted; polymorphonuclear leucocytes, 59%; small lymphocytes, 35%; large lymphocytes, 4%; eosinophiles and basophiles, each 1%. Upon being queried as to her progress she reports, "Well, I had been getting along just fine until I got a terrible scare." Further inquiry reveals that she had been out walking with an old lady friend and upon coming to a street intersection had paused to look for automobiles before crossing. Seeing none, they started to cross whereupon an unseen machine whipped around the corner knocking her companion down and startling this patient into collapse. Although unhurt she had to be carried to the walk and later assisted home. Immediately following this, her diarrhea returned and with it the numbness in her hands and feet and overshadowing all, an overwhelming weakness. Under these circumstances she was admitted to the hospital, continuous bed rest instituted and a very rigid check-up of the diet begun. There was no blood nor parasites in the stool. Radio-

graphic examination of the gastrointestinal tract was negative for gall-bladder pathology and neoplasms but an achylia gastrica was found again as was the case during her previous admission to the hospital. After close observation for fifteen days with frequent blood examinations and with the most earnest cooperation of the dietitian at Ravenswood Hospital her blood picture had declined to 23% of hemoglobin and only 800,000 R. C. At this point it seemed unwise to put off transfusion longer and so she was given 500 c. c. by the Scannell method. Following this the blood films improve readily and the clinical symptoms abate. Four weeks after transfusion her blood report is hemoglobin, 74% Sahli; R. C., 4,680,000; W. C., 8,000. Erythrocytes, color—slight achromia and occasional poikilocytes. Now, four months after leaving the hospital her blood report is hemoglobin 78%; W. C., 10,000; R. C., 4,446,000; no poikilocytes and no anisocytes. Her condition is improving steadily and she is adhering closely to her diet. In this connection my thanks go out to the dietetics department for their help in educating this patient to a proper dietetic viewpoint.

Conclusion. Both of these cases present a similarity in certain phases which might lead one to suspect that there are "types" of pernicious anemia that are related in their onset and course and subsequent response to treatment. We are accustomed to seeing one patient come in with his chief complaint being glossitis, another a persistent diarrhea and yet in another weakness and parasthesiae would be the most prominent characteristics.

Again, we must consider the element of emotional disturbance. Fright, grief and violent onslaughts directed toward either the sympathetic or cerebrospinal nervous systems are prominent etiological factors. And finally the relative place of transfusion, liver diet, and intensive hydrochloric acid treatments. It has been argued that the death rate from pernicious anemia has not been reduced, that frequent transfusions leave the patient with a lack of resistance which might hurry on the next acute period of aggravation. It would seem but wise to retain all of these measures which have proven their worth to even the most casual observer. There seems to be no contraindication to the continuous use of small amounts of hydrochloric acid by the liver fed patient with a transfusion in the background should a crisis arise. It would seem in the two cases cited that the blood transfusions gave impetus to a more rapid regeneration; it seemed to act as a stimulus to proper blood regeneration.

MANAGEMENT OF THE DIABETIC*

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It is my purpose tonight to review the present status of the management of the diabetic and discuss some of the practical aspects. Since the discovery of insulin the diet has been gradually adjusted to utilize this new therapeutic agent in the manner of most assistance to the diabetic patient. As we have become more familiar with this new hormone, we have become better able to judge its values and its limitations. The cause of diabetes is not known. It is due to a deficiency in the secretion of the pancreas, but we do not know the cause of this deficiency. Overfeeding, with lack of exercise, undoubtedly predisposes. Infections probably play a part in many cases. The disease is apparently on the increase and one wonders whether our modern mode of living, with the large consumption of refined cane sugar is not a factor. It is said that in India the natives consume large quantities of raw sugar and that there is practically no diabetes, while among the more prosperous classes in the same country who use refined cane sugar there is a high incidence of diabetes.

Insulin constitutes a replacement hormone, just as thyroid does in myxedema. Prior to the use of insulin the diet had to conform to the patient's limited ability to burn sugar, and it, therefore, contained very small amounts of carbohydrate and was as limited in caloric value as was consistent with life, especially in the severe cases. For this reason these individuals were thin and weak and favorable soil for bacterial invasions—resulting in fatal pneumonias, pulmonary tuberculosis and septicemias. With the proper use of insulin the diabetic may now have a diet approaching the normal individuals' and have better resistance to infection. In the pre-insulin days diet of C 40, P 70, F 140, low total caloric values, were absolutely necessary in the severe diabetic. This type of diet has been replaced by diet containing C values of 100 to 150 grams, and many diabeticians allow C values as high as 250 grams. This increased C value allows a corresponding reduction in the fat

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values, giving diets such as C 150, P 60, F 110, in which the C equals or exceeds the F. These lower fat diets are more desirable, for several reasons, first, acidosis is less frequent; second, lipemia is less common, and Joslin believes that the almost inevitable arteriosclerosis of the diabetic is probably due to this high fat content of the older diets; and third, the higher C diets are more palatable and there is less difficulty in keeping the patient on his diet. Strict, unpalatable diets may be tolerated for a time, but the diabetic has to diet the remainder of his life and sooner or later is sure to violate the high fat diets. Especially is this true of children and those engaged in hard manual labor requiring a lot of energy. There is, however, considerable personal variation in this matter and each diabetic becomes a rule unto himself, some accepting this monotonous diet with no apparent discomfort.

To properly manage a diabetic patient, it is essential that we understand certain fundamental facts regarding metabolism in the diabetic. Glucose is a substance which is readily broken down and oxidized with the liberation of heat and energy. The glucose is obtained from the C, P and F of the diet, or by the breaking down of body tissues as occurs in the severe unmanaged diabetic with great weight loss, or in the milder diabetic under certain conditions, as infections, injuries or operations. This glucose is stored in the liver and muscles as glycogen and is burned as needed, especially for muscular effort, and to a much less degree for mental effort. Fat only burns in the flame of the glucose, and when the glucose flame is low or not burning, as occurs in the severe unmanaged diabetic, the fat is *incompletely* oxidized and beta-hydroxy butyric acid, acetone and diacetic acid are produced. As long as elimination keeps pace with the formation of these acid substances a simple toxemia results, but when production exceeds elimination acetone bodies accumulate producing coma. These acid bodies are spoken of as ketones, and the glucose, because of its ability to burn and destroy these substances, is called an anti-ketogenic substance. The diabetic is unable to properly store and burn his glucose, which accumulates in his blood and by dilution with large quantities of water is eliminated through the kidneys with resulting polyuria. Insulin, in some unknown manner, re-

stores this glucose flame. Our principal task is to see that the diabetic has sufficient glucose flame at all times, especially during the period of acidosis is it essential that we know how to give insulin and glucose to rekindle the flame.

In discussing the management of the diabetic we must consider first, the care of the ordinary uncomplicated case of diabetes. Second, care of the complicated case with acidosis, infection or arteriosclerosis. It is not possible to consider all of these tonight, so I shall discuss the problems in planning the diet in the uncomplicated case and the management of acidosis.

Hospitalization is, in most cases, absolutely necessary. If free from acidosis the diet is then planned. The caloric need is estimated on the basis of the size of the individual, 30 calories per kilogram body weight being sufficient for the average individual doing light or sedentary work. Very active individuals, or those engaged in laborious occupations, may require 35 to 40 calories per kilogram. Begin with 30 calories per kilo, and subsequently, if the patient fails to retain his usual weight or is extremely hungry the diet may be increased. While this rule of 30 calories per kilo applies to the majority it is interesting to note that some patients require much less than their estimated need. These individual variations necessitate careful weekly observation for some time after leaving the hospital, so that the calories and diet may be changed if needed. A very satisfactory plan consists of two diets for the first few days, a low caloric diet of about 1200 to 1300 calories, which allows more rapid elimination of the sugar, and then the diet is changed to the diet upon which the patient is to be discharged, with 30 calories per kilo.

The first diet of 1200 calories should contain about 80 grams of C, a low quota of P, about 40 to 50, and fat about 70 grams. In a few days on such a diet the amount of daily urinary sugar can be determined, and one gains an idea as to the severity of the diabetes. Insulin may be started at once, especially if the urinary sugar output is great. Start with small doses of three to five units before each meal, and increase the dose until the urine is practically sugar free. Then step the diet up to the final diet upon which you intend to discharge the patient. This final diet should contain from 100 to 150 grams

of C, P 60, F q. s. to make enough calories to supply the patient's needs as estimated on a basis of 30 calories per kilo. The insulin dosage is then increased to control the urinary sugar. If the dosage of insulin required is 50 units, or less, it may be divided into two doses of 30 and 20, and given about twenty minutes before breakfast and supper. Higher doses than this had best be given t. i. d. before meals, a slightly larger dose being given before breakfast. The urine is then collected in individual specimens obtained from mealtime to mealtime. If these specimens contain sugar the dose of insulin may be increased before the corresponding meal.

The proteid of the diet is the amount just adequate to replace that destroyed in daily body metabolism. This has been estimated to be three-quarters to one gram per kilo body weight for adults. Children require two to three times as much as adults to allow for growth. In our experience 60 grams serves as a very satisfactory portion as it allows the building of a diet containing an adequate quantity of meat.

On such a regime we can handle the ordinary diabetic. If the patient will not take insulin, it is then necessary to use the older type of diet with a low C of 60 or 70, P 50 or 60, and fat to make up the caloric need. This type of diet will keep the patient sugar free, but in my experience, does not supply the patient with the same feeling of well being and energy as the higher C diet.

One of the difficulties encountered by the doctor in general practice is the selection of the food comprising the diet. In the hospital the dietitian assumes this task, but when the patient leaves the hospital and returns for advice, it is often necessary to increase or decrease the diet, or perhaps make changes to suit his individual appetite. Dr. Joslin has greatly simplified this matter by arranging a series of diets containing increasing amounts of C, P and F. These diets may be used as they are, or, by a little simple arithmetic it is possible to add or subtract C or F, as desired. You will notice that these diets are arranged with the carbohydrate content increasing about ten to twelve grams in each diet, beginning with a low C of 84 up to C 158. If it is desirable to keep the insulin dosage down you may use one of the lower carbohydrate diets and add fat in the form of butter, oil or cream

to make up the needed calories. However, this high fat diet is less desirable for, with the increase of the fat of the diet, the insulin seems to be less efficient. With the higher C diets containing a low fat content, where the C equals or exceeds the F, each unit of insulin accounts for more glucose and, therefore, the increase in the dose of insulin is not as great as might be anticipated.

I think that it is our duty to encourage the diabetic to take insulin and use a diet with a liberal portion of accurately weighed carbohydrates in the form of bread, fruit, potato and cereals. It makes a healthier, happier patient than the one on the old high fat regime. In some of the clinics much higher C values are advised, for example, a 2200 calory diet with C 227, P 65 and F 115. Such extremely high C diets require higher insulin dosage and intelligence and co-operation on the part of the patient to avoid insulin reactions. For this reason it is better with most patients to use C values of 100 to 150, which allows a palatable diet with a relatively low fat intake, and does not require excessive doses of insulin.

As an example of the advantages and disadvantages of the very high carbohydrate diets such as C 250, I might cite the case of a student attending the diabetic clinic of the Cook County Hospital, who for a period of approximately one yeear was on a diet of C 65, P 60, F 160. He never returned to the clinic without complaints such as headache, malaise, fatigue and lack of energy. This complaint was so constant that we began to consider him a neurasthenic. His diet was changed to a high C with C 250, and low fat value. He became an entirely different individual, full of energy, and stated that he felt much better and that all his former symptoms had disappeared. His insulin dosage was, of necessity, increased, but not in proportion to the increase in the C of the diet, for, with the low fat value the insulin is apparently able to handle a much larger amount of carbohydrate. This same youth, however, took his usual noon dose of insulin and ate a hurried light lunch, with the result that he had a severe reaction in the afternoon, with complete loss of consciousness, which came on so quickly that he did not have time to take any sugar, illustrating nicely one of the dangers of the high C diet and high insulin

dosage. On the whole, the carbohydrate 100 to 150 diet is very palatable, allows a relatively low fat intake, does not require excessive doses of insulin, and is a very satisfactory diet.

Insulin reactions can usually be recognized by the patient early enough that he may take sugar and relieve the symptoms. Atypical reactions often occur very suddenly, with loss of consciousness or mental confusion, and the patient may not be able to take the necessary carbohydrate.

Acidosis. If one fully appreciates the disorder of metabolism underlying diabetic acidosis, the management becomes more simple. The proteid and fat burn in the flame of the glucose. In diabetic acidosis this flame is low or almost extinct. It is our problem to keep this glucose flame burning, and this is done by the use of adequate doses of insulin. Acidosis is induced by any condition which causes this glucose flame to become lowered or extinct, among which are discontinuance of insulin, infections, as ordinary colds, bronchitis, pneumonia, hand or foot infections, operations, injuries, vomiting or fevers. To re-establish this glucose flame, we give the patient from 120 to 140 grams of glucose per day in the form of glucose solution intravenously or per mouth, or some simple carbohydrate solution, as orange juice or milk. We then give sufficient doses of insulin, first at three-hour intervals and later at six-hour intervals, to reduce the urinary output of sugar to a mere trace. If the patient takes 120 grams of glucose in the form of milk 210 cc. every three hours, or 100 cc. of one-half milk and cream, and puts out a mere trace of sugar, we know that there is an adequate glucose flame, and the acidosis will improve. In severe acid intoxication the acetone and diacetic acid may be eradicated from the blood and the blood sugar reduced to normal, but permanent damage from the circulating toxins of the cell protoplasm may prevent recovery. The usual routine in deep coma is to give approximately 50 units of insulin every six hours, or 25 units every three hours until improvement occurs, with glucose per mouth or intra-venously with each dose of insulin. In the mild cases of acidosis without deep coma ten or twenty units every six hours may be sufficient. The most important point practically is to examine the urine every three to six hours, and if the urinary sugar remains high, increase your

insulin dosage until the urinary sugar is reduced to a mere trace. As long as a small amount of sugar is present in the urine there is no danger of hypoglycemic reaction. As soon as the acidosis disappears, the patient's own insulin supply returns and the dose of insulin must be decreased to avoid insulin reaction. The early symptoms of acidosis are nausea, dyspnea and weakness and should be recognized and the urine examined for acetone and diacetic acid. As soon as there is evidence of acidosis immediate acidosis management should be started, for in twelve hours a mild diabetic may be in deep coma. Every hour is important.

As soon as the patient's appetite returns he is placed on a three meal mixed diet, containing an adequate amount of carbohydrate and a relatively low fat content, as represented by C 100 P 60, and F 100, and given sufficient insulin before each meal to keep the urine sugar free.

Other important points in the management of deep coma are gastric lavage, external heat and fluids, preferably hypodermically, one to two thousand cc per day. There are cases of coma in which the laboratory findings of acidosis disappear, but the patient remains weak, semi-stuporous and dies. In our experience these patients have had complicating diseases, especially the infections, pneumonia, lung abscesses, otitis media, acute pancreatitis, septicemia or uremia. The uncomplicated coma, unless in extremis, should make a good response. Another unusual and very fatal complication of diabetic coma is urinary suppression. In this condition the urinary output becomes very small and the diacetic acid may disappear from the urine due to the inability of the kidney to excrete it. Albuminuria is usually present in these cases. Infections of any type are dangerous to even the mild diabetic. In the presence of an acute infection, every diabetic should be put on acidosis management, with liquid diet of milk or orange juice, and given insulin at six-hour intervals, with urinary examinations every six hours to keep the urine low in sugar and free from diacetic acid. All diabetics should be warned as to this danger and advised in such emergencies to follow the milk diet, cut the insulin dose in two, and to call the physician at once.

In reviewing a group of histories of diabetic coma cases that entered the Cook County Hos-

pital during the last nine months certain facts were noted. The coma was precipitated by infections in the majority of cases. A few cases were due to discontinuing insulin, and one to a gastrointestinal upset. The coma cases with infections in the younger individuals recovered, but the older patients with infections all died, in spite of the fact that the acidosis was controlled at least as far as the laboratory findings were concerned. The fatal infections encountered were cellulitis of the neck, infectious gangrene of the leg, abscess of the chest wall, abscess of the perineum, hand infections and orbital cellulitis. There was a great variation in the insulin dosage in the cases which recovered, for example, the total first day dosage varied from 80 to 300 units, without one case of hypoglycemic reaction. These cases suggest that any diabetic coma with infection is always grave and warrants a guarded prognosis. Also that large doses of insulin are well tolerated during deep coma. When one considered that the blood sugar in the coma cases is usually 400 or more we can understand that there is little danger of hypoglycemia, and in the severe comas the 50 unit dose may be given every two or three hours for the first six or eight hours if needed. The only hope of recovery depends upon adequate insulin dosage early.

Arteriosclerotic complications are especially common in the older diabetics. Angina pectoris and coronary thrombosis may occur. Insulin, of course, cannot remove these advanced cardiovascular changes. Gangrene of the lower extremities offers one of the interesting and difficult problems in the old diabetic and here it is more a problem of arteriosclerosis than diabetes and careful co-operation between the surgeon and internist is necessary to guide these patients through their dangers.

In conclusion:

1. A theoretical knowledge of the importance of the glucose flame is essential for proper management of the diabetic.
2. The older high fat diets are being replaced by the higher carbohydrate diets, of which C 100 to 150 seems a very satisfactory value.
3. With the lowering of the fat and increase of the carbohydrate in the diet the patients feel much better.
4. The early symptoms of acidosis should be recognized promptly and adequate insulin ther-

apy started. The uncomplicated comas respond well to insulin. The comas with infections offer a gloomier prognosis, especially in the older patients.

30 N. Michigan Ave.

THE COUNTY TUBERCULOSIS SANATORIUM—CITY LOCATED*

CECIL M. JACK, M. D., F. A. C. P. and
D. O. N. LINDBERG, M. D.
DECATUR, ILL.

In nearly all countries, sanatoria have their location in the remotest sections of the districts served. One of us¹ in 1927 reported upon the apparent success of a city located county tuberculosis sanatorium. With the lapse of several years since the earlier report there has developed an increasing amount of evidence in support of the soundness of the project with respect to its city location.

While we readily acknowledge one or two disadvantages in the plan, the obvious advantages so completely offset them as to nullify their importance. As disadvantages, we include:

(a) Smoky atmospheric conditions are present for portions of a considerable number of days in the year.

(b) Greater accessibility of the sanatorium results in increased patient visitation.

Among important advantages are:

(a) The sanatorium better serves as a nucleus for tuberculosis propaganda.

(b) The physicians of the community become more "tuberculosis minded" and interest themselves in a disease that has in the past received little attention or study on the part of the general practitioner, and it is to him we must look for major assistance in solving the problem of tuberculosis.

(c) There becomes a noticeable lessening of phthisiophobia.

(d) There are provided more adequate facilities for clinic study of contacts. (In the light of our present knowledge of diagnostic criteria of childhood tuberculosis, clinics held without routine use of roentgenograms yield inaccurate as well as misleading results.)

(e) The necessity, upon the part of the sanatorium staff to steer from the course of routine

*Read before the Illinois State Tuberculosis Association's annual meeting at Jacksonville, Illinois, November 7, 1930.

regime and to remain alert for every progress being made in their particular field.

Because of the city location of the Macon County Tuberculosis Sanatorium it seemed natural to bring about an affiliation with the adjacent general hospital² to avoid the necessity of making certain capital investments when the sanatorium was in its embryonic stages of growth. This affiliation was in the nature of purchasing services on the "pro-rata" basis of general hospital costs. This was, of course, based upon the theory that a large institution could, with very nearly the same overhead, provide hospital service to a smaller unit of a few additional beds at less cost than when the smaller institution provided for a separate overhead organization. At the outset, in this connection, one rather loses sight of the fact that general hospital organization has to be a complex one with a resulting per diem cost of from \$4.50 to \$10.00 per patient, based upon room location, number of vacant beds at a constant overhead cost, whereas a sanatorium of 75—100 beds operating independently with a more or less skeleton type of organization can furnish a very high standard of sanatorium regime for the tuberculous at an average daily cost of \$3.00 to \$3.25. Actual cost figures for the past seven years corroborate this, and it was partly upon the basis of costs that a reorganization program was undertaken this year.³

In the institutional field today we recognize two types of tuberculous wards; the first, the curative wards of the sanatorium regime; second, the hospitalization program for the advanced consumptive, hospitalized for either domiciliary or isolation reasons, or both. An administrative problem therein arises. The first group should have the less costly sanatorium regime directed by a full-time phthisiologist having mature experience in this type of institutional care and supervision. Happily the phthisiophobia of the general hospital is disappearing and the second group is easily adaptable to general hospital routine, and so today we have in large cities general hospital tuberculosis wards. The medical practitioner comes into contact with tuberculosis much closer at hand through this program of general hospitalization of certain types of the tuberculous and too much cannot be said concerning the tremendous assistance thus given in the eradication of this disease.

We believe that it is a mark of progress to

bring tuberculosis sanatoria closer to civilization and the advantages have already been outlined. From the administrative standpoint, however, we feel that the control and direction of the sanatorium logically lies with those who, in addition to being institutionally trained, are well schooled in the problem at hand—sanatorium regime for the curably tuberculous. There are comforts and details and incidents of sanatorium regime that receive little notice from the general hospital executive. Certain small economies must not be practiced at the sacrifice of the contentment, comfort and morale of the patient body in sanatoria, while at the same time we are not warranted in supplying the more costly hospital service to the tuberculous patient.

We have found that actual economy results when a small but efficient chest x-ray suite is provided at the sanatorium, which also eliminates the journey to an adjoining institution with resultant loss of time to personnel and maximum expenditure of energy on the part of the patient.

Food is a factor second only in importance in the treatment of the tuberculous, to rest. The so-called "house diet" of the general hospital does not lend itself well, in our experience, to adaptation to the tuberculous who are resident in a sanatorium bed for from 1 to 3 or more years and to whom any diet becomes monotonous early in their institutional episode. There results both financial and physical loss when the diet is but partially suitable to the tuberculous patient.

The other services depend to some extent upon cost and character of those services rendered and are not within the province of this paper.

Conclusions:

1. The Macon County experiment of locating a tuberculosis sanatorium in the city has proven eminently successful over a period of seven years.

2. In the case of a county with insufficient funds to provide for capital investment for such units as power plant, etc., location near a general hospital is feasible provided that:

- (a) Certain essential factors of tuberculosis treatment, such as x-ray and food, are provided at the sanatorium.

- (b) Administrative control and direction rests with those responsible for the control of the tuberculosis problem.

3. The educational and propaganda features

are enhanced by a city located sanatorium arrangement.

REFERENCES

1. Dr. Cecil M. Jack: "The County Tuberculosis Sanatorium as a Unit of a General Hospital."
2. Decatur and Macon County Hospital, a privately incorporated general hospital receiving no county support or direction.
3. The Macon County Tuberculosis Sanatorium was reorganized upon a separate basis, June 1, 1930.

DISCUSSION

Dr. R. G. Bell, Champaign: Dr. Jack's paper was a very excellent one and I feel that when we go to tuberculosis meetings we spend too much time on the diagnosis and treatment of the disease and forget all about the mechanics. I am very much interested in it because it brings out what is my idea of a sanatorium connected with a general hospital. The only basis upon which a sanatorium should be connected, directed and managed as one institution is on the financial basis. I do not know of a general hospital which can be operated on \$2.75 and \$2.50 a day and accomplish what a sanatorium does for its patients.

Recently we have had another argument put up; that is the increased need for x-ray work, and surgery. As far as x-ray is concerned it can be done in a sanatorium and much more satisfactorily. The operating room can be put into a sanatorium which can do the work. It means that some of the equipment will have to lie idle, but, for instance, when I want surgery done I have to take my patient to a general hospital for thorocoplasty, the patient is out from under my care and management and does not get the same care, while if we had our own operating room we could have the whole thing done in our own sanatorium, especially in a sanatorium of 75 beds.

My idea is to keep the sanatorium separate. Tuberculosis is a specialty work. A dietitian has enough trouble to get a cook to prepare one diet in the proper way, much less two. General hospital food is all right for a short period of time but the diet does not vary enough to make sufficient change for a tuberculosis patient who is hospitalized for 3 to 8 months. When you go over the menu in a general hospital for a week or two I do not believe that any tuberculous patient would stand for it. Therefore, you have to get the cook to cook two sets of food. Every superintendent of a general hospital has enough to do without going into the specialty of tuberculosis and he is either more interested in the sanatorium or the activities of the general hospital. You have to rely upon your tuberculosis nurses to do a large share of the work. From the executive standpoint I cannot see the connection at all. There is no justification for it. There is too much specialty in the care of the tuberculous. I do not have any objections to locating a sanatorium near a general hospital because of the shortage of money so as to get laboratory service, and if necessary, x-ray, but do not take the sanatorium out of the hands of the man to whom it belongs, the tuberculosis executive.

Dr. Palmer, Springfield: I think Dr. Jack gives the impression which he does not intend to be given, be-

cause the Decatur and Macon County Hospital and the Decatur Sanatorium are ideally located and not in the business district of the city, but at the outskirts of the city with a country environment for the care of those chronically sick with tuberculosis. City location is not good for the tuberculosis sanatorium for the care of the tuberculous patient.

Dr. D. D. Monroe, Edwardsville: The place for a tuberculosis hospital in connection with a general hospital is for the purpose of the physicians becoming interested in tuberculosis. There are physicians who will not come to the sanatorium because they are afraid of tuberculosis. At the New Orleans meeting there was a general complaint of vacant hospital beds, and at that meeting I suggested that they set aside some of those beds for tuberculous patients. The physicians do not like it at all if we combine the two. Vermilion county has it in mind, and I think it is a fine idea.

SPONTANEOUS AMPUTATION OF THE TONGUE

LOUIS SCHULTZ, M. D.

From The West Suburban Hospital, Oak Park, Illinois

CHICAGO

My inability to find similar cases cited in recent or current literature has furnished the incentive for this report.

The early history of medicine contains records of gangrene of the tongue with total loss. Such cases are reported by Hippocrates, Celsius, Galen and others, showing a rather frequent termination resembling my case. From then on the literature seems silent until the beginning of the twentieth century. Bozo of Paris in 1903 reports a number of cases in his doctorate thesis; one, a case of epithelioma of the floor of the mouth, invading the tongue. After eight months' duration it forced the tongue out of the mouth so it hung down over the right side of the lower jaw which, though the patient was edentulous, was gradually cutting off the protruding part. The amputation was completed surgically and the patient died six days after the operation. In another case of epithelioma there was spontaneous separation of the anterior portion due to the agency of the teeth. Cancer, mistaken for syphilis, destroyed the entire tongue in another case. Sphacelus destroyed the entire organ in yet another. Patient survived and could talk fairly well, but could not swallow solids and liquids except when lying down. In an interesting case of gangrene of the tongue in

a child $2\frac{1}{2}$ years old two-thirds of the tongue had been lost when the child died. And finally the tongue of a probable syphilitic underwent spontaneous separation of its anterior third due to gangrene. In all these cases there appears an element which partly, but only partly, fits the picture of the case I am about to report; in that they have as causative factors necrosis, malignant disease, and syphilis.

Briefly, the etiology of spontaneous amputation of the tongue may include the following groups mentioned by Bozo: First, cases of macroglossia with a resulting protrusion and slow compression by the teeth or by the alveolar ridges, inducing a secondary ulcerative process. Second, grave primary lesions of the tongue, such as acute and chronic glossitides, including gangrene, epithelioma, etc., of the organ.

To the cases mentioned by Bozo, I want to add my own. Patient, F. G. A., male, fifty years of age, was referred to me by Dr. A. Roble on March 14, 1928. He appeared in good health, had no sign of cachexia, but has had leukoplakia on the right side of the tongue for years. He is a smoker. Past history: Father died of apoplexy at 74 years, mother living and well, 72 years old; no brothers nor sisters. Except for frequent herpes lingualis past history is negative. Nine years ago was laid up several months after having a "stroke," but returned to his work as accountant. He complained of a painful tongue of about a week's duration. It showed two areas, each about the size of a nickel, about the middle of the right dorsum. These areas were thick, hard and white. No fissures and no ulceration but an abscess in the substance of the posterior one from the center of which pus exuded. The entire right side was tense, indurated and afflicted with leukoplakia, but with the exception of the spots just described, the keratosis appeared thin, pliable, bluish-gray. There was defective speech due to the induration and swelling of the tongue. A Wassermann showed 4 plus, coupled with a history of a specific lesion twenty-five years ago; so I returned the patient to Dr. A. Roble for anti-luetic treatment. When, a month later, he returned for further observation as requested, he seemed much improved, but had developed another abscess in the mass which was incised and drained by Dr. A. Roble. Suspecting a malignancy engrafted upon the luetic lesion, I made a biopsy which showed (Dr. E. C. Piette) marked thickening of the epithelial layers, diffuse lymphoid infiltration of subepithelial structures with a widespread destruction of muscle fibres of the tongue. In other words, it was the picture of a far advanced leukoplakia, but no malignancy was found. He improved slowly, but a month later he had another small abscess, which was drained. About a year after I had first seen him he presented with a similar lesion on the left side involving the floor of the mouth. I asked for another Wassermann, but the

patient drifted away. He was seen by various men. Finally he got into the hands of Dr. Allison L. Burdick, who has attended him since March, 1929, and who makes the following report: Patient visited several clinics and dispensaries receiving varying types of specific treatment, including x-ray. Tongue at this time was two to three times normal size, with a deep ulcer in the median raphe and another one at right angles to it, branching off to the left. He had a severe stomatitis, including pressure sores on the under surface of the tongue, due to his remaining teeth. Tongue was immobile. He had constant headaches, numbness of the extremities, and walked with a stumbling gait. Eye reflexes were normal. Knee jerks active, Babinski positive. Blood pressure 150/90. Urinalysis showed a trace of albumin and many hyaline and granular casts.

The condition of the mouth and tongue improved gradually over a period of six weeks when rather suddenly the tongue became so greatly swollen that it forced the mouth open until there was a gap of 2 cm. between the teeth. There was edema and swelling of the lips and chin at the same time. Again there was gradual recession in size, but the ulcer areas had definitely deepened and extended. The horizontal ulcer was now extending past the midline to the right. They bled easily. Further x-ray treatments were refused.

In September, 1929, the tongue had become small enough to be moved slightly but was extremely painful. The condition of the mouth, and the odor, were exceedingly foul. The lower jaw had swollen and the chin began to form pustular swellings. In October a crater-like ulcer with pouting edges developed on the right side of the chin, following the opening of a large pustule. The tongue continued getting progressively smaller and more movable, but interfered frequently with the act of swallowing.

On November 30, while trying to eat, the tongue got in the way. By a little tug the patient pulled out what was left of the organ. There was practically no bleeding and I was not even notified until the next morning. The specimen was oval in shape and slightly nodular, measuring about 3x3.5 cm. The laboratory report on the microscopic findings (Dr. E. C. Piette) was inflammatory infiltration, cancer pearls, and necrotic tissue, with the diagnosis of squamous celled carcinoma.

Examination of the mouth showed no tongue tissue left. The patient could talk and be rather easily understood, but had more difficulty in swallowing than before. This coincides with the case described by Bozo and mentioned above.

Subsequent history includes a marked loss of weight due largely to his inability to eat a sufficient amount of food, three very severe hemorrhages from a cleft in the floor of the mouth, the further extension of the carcinoma to the jaw and chin and the removal of two pieces of sequestrum through the gums. In fact there has been a massive extension of the ulcerous area on the chin, an involvement of both tonsils and the entire floor of the mouth including both submaxillary glands.

These glands have been palpable only since last December.

He died May 1, 1930.

25 E. Washington Street.

Society Proceedings

COOK COUNTY

CHICAGO SOCIETY OF INDUSTRIAL MEDICINE AND SURGERY

Meeting April 1, 1931

- Bacteriophage Therapy in Pyogenic Infections.... F. W. Slobe
 Discussion: E. C. Holmblad and V. S. Cheney.
 Synovectomy of the Knee Joint in Certain Forms of Arthritis (Illustrated by Motion Pictures and Lantern Slides) M. A. Bernstein
 Discussion: W. R. Cubbins and E. B. Fowler.

CHICAGO MEDICAL SOCIETY

Regular Meeting, April 15, 1931

- "Analgesia in the First Stage of Labor with Special Reference to Oral Use of Sodium Amytal".....
 Eloise Parsons
 "Scarlet Fever Immunity and Streptococci Puerperal Infection".....G. E. Hudson
 "Abruptio Placentae" M. Edward Davis
 "Intracranial Injuries to the Fetus"....Fred L. Adair
 "Breech Extraction. Resuscitation of an Asphyxiated Infant"—Moving Pictures....Joseph B. DeLee

CHICAGO MEDICAL SOCIETY

*Joint Meeting With Chicago Roentgen Society,
 April 22, 1931*

- (1) Affections of the Upper Respiratory Tract
 H. K. Pancoast,
 University of Pennsylvania,
 Philadelphia, Pa.
 (2) Foreign Bodies in the Air Passages, Both Opaque and Non-Opaque.
 Willis F. Manges,
 Jefferson Medical College,
 Philadelphia, Pa.

LEE COUNTY

The Lee County Medical Society held one of the largest meetings of its history last evening at the Dixon State hospital which was attended by over 250 guests. When Dr. Warren G. Murray invited the association to hold their meeting at the state hospital the officers quickly grasped the opportunity, for other county medical societies do not have such an institution nor such an opportunity to draw visiting doctors. Seven hundred invitations were sent out to all the doctors in northern Illinois and the dentists of Dixon, the high school officials, the Dixon Nurses Alumni, the nurses of the state hospital and the pupil nurses because the

program arranged was one that would be of interest to all. A number of friends of the officials were also invited to attend.

Some of the doctors came early in the afternoon to visit this interesting institution and were conducted through it by staff members. In the evening the guests were assembled in the auditorium where an entertainment was provided while the banquet preparations were being completed. Jack Watters, the chef at the state hospital, planned, prepared and directed the serving of an elaborate banquet, without doubt, the finest that the doctors have attended for a long time. There were so many acceptances received that preparations were made to feed about three hundred but the inclement weather prevented some who intended to come from Peoria, Moline, and Rock Island from attending. However, there were large delegations from Rockford, Freeport, Rochelle, Ottawa, Streator and other cities as far as Fulton. The banquet was served by twenty of the young lady attendants in a most efficient manner and was terminated by boxes of candy presented to each of the ladies and cigars and cigarettes to the gentlemen.

During the banquet the guests were entertained by violin solos by Miss Ruby Shippee, who has recently won the state championship for violin playing and her accompanist, Loala Quick, both of Ashton, and by some charming vocal solos by Helen Parker, daughter of Dr. W. R. Parker, president of the Lee County Medical Society. She was accompanied by Clinton Ives, son of Dr. C. H. Ives, past president of the society and Frank Gorham. These solos were enthusiastically applauded by the audience.

Immediately following the banquet Mrs. Marian Hart presented several groups of her hospital pupils in various song recitals. The work that she has been able to do with these children, who were considered subnormal, is remarkable indeed. Dr. Warren G. Murray introduced his first speaker, Dr. Gladys Dick, calling attention to the fact that her work in the prevention of scarlet fever places her in the same class with such immortal discoverers as Pasteur, Jenner and others. She gave a very interesting talk on the "Practical Results in the Control of Scarlet Fever" and stated that in institutions such as the Dixon state hospital where the patients have been properly vaccinated with five doses of scarlet fever toxin anti-toxin there have been no cases of scarlet fever at all.

Dr. Paul L. Schroeder, Illinois state criminologist and director of the Institute for Juvenile Research, gave a very interesting talk on "Juvenile Behavior" calling attention to the mistakes made by parents in correcting children which may result in abnormal mental processes later. His remarks concerned many easily overlooked psychological factors in the control of children. Dr. W. G. Murray then introduced several of his staff members, the first of whom was Dr. H. E. Marselus, assistant superintendent, who talked upon "Post Encephalitic Syndromes" and illustrated his remarks by some very interesting patients. Dr. Ivan Radeff talked upon "Infantile Cerebral Palsies" and presented a number of patients. This is a type of patient whose condi-

tion is the result, usually, of some trauma during birth. Dr. B. D. Hart talked upon "Arsenical Multiple Neuritis" and illustrated a case that is rapidly recovering from this serious disease. Dr. Z. M. Glattor talked upon "Muscular Dystrophies" and presented three boys from the same family which were a most interesting group of cases. Two of the boys were placed upon a table to illustrate the difficult and almost impossible attempts to regain an upright position due to this rare and peculiar disease.

During the meeting the guests were informed of the illness of one of the best loved doctors in this part of Illinois, Dr. E. S. Murphy, and the secretary was directed to express the regrets of the many doctors and nurses present and to assure him again of their hopes for his speedy recovery.

The meeting adjourned at 11 p. m. by a rising vote of thanks to Dr. Warren G. Murray and his staff for their kindness in extending an invitation to hold this wonderful meeting at the state hospital.

MERCER COUNTY

At the Annual Spring Meeting of Mercer County Medical Society, held at Oak View Country Club, April 14, Dr. Hugh D. Stites of Aledo was elected president.

Approximately 50 physicians and their wives were present, including several from Rock Island, Knox and Warren counties.

Other officers elected for the coming year were: Dr. C. M. Murrell, Sherrard, vice president; Dr. G. L. Rathbun, New Windsor, secretary-treasurer, and Drs. V. A. McClanahan, Aledo; Hugh Stites, Aledo and W. A. Miller, Aledo, members of the board of censors.

Dr. V. A. McClanahan was elected delegate to the 81st annual meeting of the Illinois State Medical Society to be held in East St. Louis, May 5, 6 and 7, and Dr. R. G. Bird was selected as alternate. Other routine matters were taken up at the business meeting.

Two addresses of unusual interest featured the meeting. Dr. William H. Holmes, associate professor of medicine at the Northwestern University, spoke on "Nephritis" and Dr. Paul B. Magnuson, associate professor of surgery at Northwestern University, gave an illustrated lecture on "Making Success Out of Failure in Certain Common Fractures by Simple Procedures." The latter talk was illustrated by lantern slides shown by two high school students.

Tuesday's meeting was one of the most successful in the history of the local society, members agreed. Retiring officers are: Dr. T. D. Coe, Keithsburg, president; Dr. G. H. Moore, Aledo, vice president; and Dr. J. W. Wallace, of the board of censors. Dr. Rathbun was re-elected secretary-treasurer and Drs. Stites and McClanahan will remain on the board of censors.

Marriages

THOMAS DYER ALLEN, Evanston, Ill., to Ruth Delzell Mather of Kalamazoo, Mich., February 24.

Personals

Dr. Dean Lewis, Baltimore, among others, addressed the Chicago Surgical Society, April 3, on "Congenital Arteriovenous Communications."

Dr. Thomas C. Galloway, Jr., Evanston, Ill., address the Chicago Laryngological and Otological Society, April 6, on "Treatment of Carcinoma of the Esophagus."

Dr. Paul A. Isherwood, West Chicago, addressed the DuPage County Medical Society recently in Glen Ellyn on "Relations of the Coroner and Physician."

Dr. Walter S. Swan, a resident of Harrisburg since 1881, celebrated his fifty-fourth year in the practice of medicine March 10.

Dr. William F. Burres, Urbana, was recently made a life member of the Champaign County Medical Society, of which he has been a member since 1884. At present he is the only life member.

The Mercer County Medical Society was addressed at Aledo, April 14, by Drs. William H. Holmes and Paul B. Magnuson, Chicago, on nephritis and common fractures, respectively.

Dr. Edwin P. Sloan, Bloomington, addressed the Douglas County Medical Society recently on "Hospital Organization, Formation of Staff and Medical Ethics."

Iopax in the diagnosis of renal tuberculosis was the subject of Dr. Royal W. Dunham, Ottawa, Ill., among others, before the Chicago Tuberculosis Society April 9.

Dr. Karl A. Menninger, Topeka, Kan., addressed the Peoria City Medical Society, April 7, on "Suicide—A Psychological and Psychiatric Problem."

Dr. Charles H. Miller gave the final lecture in a series of health programs sponsored by the Englewood Y. M. C. A., April 2. His subject was "Outwitting Middle Age."

Dr. William D. Chapman, President of the Illinois State Medical Society, talked on "Medical Organization" before the Sangamon County Medical Society, Springfield, on April 2. Dr. Harold N. Camp, Secretary, addressed the same group on "Medical Economics."

The inaugural address of the Mayo Lecture-ship in Surgery at Northwestern University Medical School was given April 22 at the

Murphy Memorial by Dr. E. Starr Judd of the Mayo Foundation on "Fundamental Problems Associated with Disease of the Biliary Tract."

Drs. James H. Hutton and R. K. Packard addressed the Kane County Medical Society meeting in Aurora, April 15.

Dr. Clayton J. Lundy presented a paper on "The Electro-Cardiograph: Its Value to the General Practitioner," at the April 15 meeting of Will-Grundy County Medical Society.

Drs. Walter H. Nadler and G. K. Fenn were scheduled to give a scientific program at the spring meeting of Bureau County Medical Society, Princeton, April 16.

Drs. William R. Cubbins and Marshall Davison addressed the Jackson County Medical Society at Carbondale, April 16.

Dr. Mary E. Pogue addressed the Woodstock Woman's Club on April 13. Subject, "Psychiatry."

Dr. Emmet Keating addressed the Fort Wayne, Indiana, Medical Society, April 21, on "The Complete Physical Examination."

Drs. LeRoy H. Sloan and James H. Hutton were invited to present the scientific program at the April 21 meeting of the Fulton County Medical Society.

Dr. Carl A. Hedblom gave an address on "Diagnosis of Pulmonary Tuberculosis" at the April 22 meeting of Will-Grundy County Medical Society.

Drs. Francis S. Seneer and J. G. Carr addressed the Clinton County, Iowa, Medical Society on April 23.

Drs. Geza deTakats and George deTarnowsky read papers on "Injection Treatment of Varicose Veins" and "Low Back Pain" before the Iroquois County Medical Society, April 23.

Dr. W. F. Peterson, President of the American Society of Experimental Pathology, attended the meeting of the Federation of American Societies for Experimental Biology held at Montreal, April 8-11, and presented two papers before the Division of Pathology.

Dr. Max Biesenthal, member of the Board of Directors, Chicago Tuberculosis Institute, was the guest speaker at the annual meeting of the Illinois Tuberculosis Association held in Waukegan, April 23.

Dr. Gilbert FitzPatrick addressed the Will-Grundy County Medical Society April 8.

Dr. Benjamin Goldberg will speak on "Medical Education in Tuberculosis" at the Twenty-seventh Annual Meeting of the National Tuberculosis Association to be held in Syracuse, New York, from May 11 to 15, 1931.

Dr. Clement L. Martin presented a paper on "Treatment of Hemorrhoids by Non-Surgical and Operative Methods," at the April 9 meeting of Kankakee County Medical Society.

Dr. Charles Morgan McKenna presented a paper on "Surgery of the Kidney" at the April 14 meeting of Rock Island County Medical Society.

Dr. Charles Davison, Professor of Surgery, Emeritus, of the University of Illinois College of Medicine, will deliver an address at the Medical Historical Club at the Quine Library on May 6 at 1:00 p. m. His subject will be "Reminiscences," and will be devoted chiefly to the medical history of the west side of Chicago.

Dr. Max Thorek of Chicago has been made an Honorary Corresponding Member of the Egyptian Medical Association, Cairo, Egypt.

Dr. Fred Meixner delivered the Pi Sigma Phi Lecture before the faculty of Bradley College, Peoria, Illinois, on March 16. The subject was "Modern Aspects of Health Education."

News Notes

—The Chicago Medical Society announces that two weeks of post-graduate clinics will be held under its auspices at the Cook County Hospital, June 22-July 3. Physicians who are interested are requested to communicate with the secretary of the Society, 185 North Wabash Avenue, Chicago, for further information.

—Governor Emmerson has designated the week of April 26 to May 2 as Health Promotion Week. The Educational Committee of the Illinois State Medical Society will co-operate with the medical societies and lay groups in observing these dates.

—A tumor clinic has been established at Mercy Hospital for the study and treatment of malignant diseases. The clinic is equipped with facilities for diagnosis, short wave x-ray apparatus and a radium laboratory. At present it meets twice a week, Tuesday and Friday, at 10:30 a. m. Every case referred to the clinic will be carefully followed in order to obtain statistical material

on end-results and to determine the best methods of treatment.

—Senate Bill 278, to amend the law concerning the registration of births and deaths, proposes that in county seats of over 100,000, local registrars of vital statistics shall not be required to file with the county clerk copies of certificates of births, stillbirths and deaths, but shall make, file, index and permanently preserve in their own respective offices a complete and accurate copy of each birth, stillbirth and death certificate registered by them.

—Through the efforts of Chief Justice John P. McGoorty of the Criminal Court, it is reported, a new advisory behavior clinic has been established in the county jail for the purpose of aiding the judges in disposing of cases in which the mentality of the defendant is at issue. It is said to be the first clinic of its kind established in a jail. Dr. Harry R. Hoffman, assistant clinical professor of neurology at Rush Medical College, was appointed head of the clinic April 1.

—An all-day clinical meeting was held by the Adams County Medical Society at Quincy, April 13, the morning program consisting of a skin clinic by Dr. John R. Pollock; a paper on otitis media and its complications, Dr. Walter D. Stevenson; presentation of cases of hyperthyroidism, Dr. Warren F. Pearce, and patients and case reports on perforated gastric ulcer, Dr. Arthur H. Bitter. In the afternoon, Dr. Edmund B. Montgomery presented "Results of Whitman's Method of Treating Fractures at the Neck of the Femur"; Dr. Thomas J. Merar, "Coronary Occlusion"; Dr. Harold Swanberg, "Preradium Treatment of Carcinoma of the Cervix," and Dr. Frank Cohen, "Early Diagnosis of Pregnancy by Animal Injection."

—The Chicago Council of Medical Women held their regular monthly meeting at the Medical and Dental Arts Club May 1, 1931, with the following program: "Study in Normal Maternity," Ida M. Alexander, M. D., State of Michigan Department of Health; "Wisconsin Maternal Mortality Study," Charlotte Calvert, M. D., State of Wisconsin Department of Health; Discussion, Bertha Van Hoosen, M. D.; Effie G. Davis, M. D., and Eloise Parsons, M. D.

—The Central Interurban Clinical Club,

which is comprised of representative internists from the University of Minnesota, Mayo Clinic, University of Iowa, Washington University, University of St. Louis, Rush Medical School, University of Chicago, Northwestern University, and the University of Wisconsin and Illinois, meets twice a year and spends a day in the various teaching centers in order to become acquainted with new teaching methods and new investigative advances. They will meet May 2, 1931, in the morning at the University of Illinois College of Medicine, 1817 Polk Street, and in the afternoon at Northwestern University.

—Dr. Maud E. Abbott of McGill University spoke to the Medico-Historical Club of the College of Medicine, University of Illinois on April 8. The subject of the address was Sir William Osler, Biographical Outline and Personal Recollections, and was illustrated with numerous slides. The famous Osler museum of McGill was developed under the supervision of Dr. Abbott. Dean Davis called attention to the exhibit of Oslerana in the library. This exhibit includes the books written by Osler, the books that Osler particularly admired, the first edition of Cushing's life of Osler, with an autographed photograph of Cushing; numerous photographs of Sir William, also many letters from Sir William, some of them to various members of the faculty. The exhibit of Oslerana will remain in the library during the month of April and visitors are invited to see it any day between the hours of nine and five.

—At a meeting of the Lee County Medical Society on Tuesday evening, February 17, 1931, an election of officers was held with the following results: Dr. W. R. Parker, president; Dr. H. M. Edward, vice-president; Dr. Kenyon B. Segner, secretary-treasurer.

—The 1931 Gehrman Lectures will be given by Dr. Alice Hamilton of Harvard University on "Recent Advances in Industrial Toxicology." The specific titles and dates are: Tuesday, May 12, 4 p. m., "Lead Poisoning"; Wednesday, May 13, 1 p. m., "Arsenical Poisoning—Mercurialism Silicosis"; Thursday, May 14, 4 p. m., "Poisoning from Volatile Solvents." These lectures will be given in the Quine Library, 1817 Polk Street. Adolph Gehrman was Professor of Bacteriology and Hygiene from 1894 to 1918, and died in 1920. The lectureship was endowed by his

family and the lectures are given each year on some phase of Hygiene and Public Health.

Deaths

NIMROD B. ALLEN, Kankakee, Ill.; College of Physicians and Surgeons, Keokuk, 1878; formerly on the staff of Kankakee State Hospital; died, March 13, at West Palm Beach, Florida.

WALTER CLARENCE BLEY, Beardstown, Ill.; Jefferson Medical College of Philadelphia, 1900; a Fellow, A. M. A.; president of the board of education; aged 54; died, March 15, in Our Savior's Hospital, Jacksonville, of uremia, chronic interstitial nephritis and erysipelas.

JAMES CHARLES BRYDGES, Chicago; Rush Medical College, 1892; formerly on the staff of Soldiers and Sailors Home at Quincy and later with Chicago Department of Health; a practitioner for several years in California; aged 72; died, February 19, of chronic nephritis.

WILLIAM EDWARD CONSTANT, St. Charles, Ill.; General Medical College, Chicago, 1883; retired several years; aged 77; died, March 17.

EDWARD W. FENITY, Kane, Ill.; Northwestern University Medical School, 1885; member of Illinois State Medical Society; whose practice combined with that of his father, Dr. Peter Fenity, is said to have covered a period of 87 years; aged 70; died, March 29.

ARTHUR LEOPOLD FORSTER, Winnetka, Ill.; University of Illinois Medical School, 1907; author of a work, "Mastery of Cancer"; aged 47; died, April 12, of myocarditis.

HUDSON MCBAIN GILLIS, Woodriver, Ill.; St. Louis College of Physicians and Surgeons, 1907; a Fellow, A. M. A.; aged 50; died, March 22, of coronary thrombosis.

HENRY C. HOLTON, Sidell, Ill.; Jefferson Medical College of Philadelphia, 1883; a Fellow, A. M. A.; aged 77; died, March 5, in the Barnes Hospital, St. Louis, as the result of a fall.

PAUL HULLHORST, Topeka, Kans.; State University of Iowa College of Homeopathic Medicine, 1889; formerly lecturer on materia medica in his alma mater; later a practitioner in Chicago for several years; aged 64; died, February 5, of myocarditis.

MINNIE JAHIP, Chicago; Chicago Medical School, 1916; aged 50; died at Elgin, December 9, 1930, of chronic myocarditis.

JOHN ALBERT KENNEDY, Modesto, Ill.; St. Louis University School of Medicine, 1907; aged 49; died, March 11, of heart disease.

ROBERT BOOTH KIRKPATRICK, Peoria, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1876; aged 75; died suddenly February 26, of heart disease.

LOUIS JACOB LINDER, East St. Louis, Ill.; Ameri-

can Medical College, St. Louis, 1898; a Fellow, A. M. A.; aged 55; on the staff of St. Mary's Hospital, where he died, February 27, of diabetes mellitus.

J. T. MAGILL, Erie, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1892; aged 69; died, March 10, of general peritonitis and carcinoma of the stomach.

HUGH LORIMER MARSHALL, Stronghurst, Ill.; Barnes Medical College, St. Louis, 1889; captain in the Medical Corps at Camp Meade during the World War; health physician of Stronghurst and coroner of Henderson county; member of Illinois State Medical Society; aged 58; died, March 2.

CLARENCE NICHOLAS MCCUMBER, Lewistown, Ill.; Rush Medical College, 1905; aged 50; died, March 23, in the Methodist Hospital, Peoria.

LEWIS C. MORGAN, Mount Vernon, Ill.; Hospital Medical College of Evansville, Ind., 1886; member of the Illinois State Medical Society; at one time mayor of Mount Vernon; formerly bank president; aged 69; died, April 2, in Kansas City, Mo., of coronary occlusion and arteriosclerosis.

GEORGE P. POWELL, Dixon, Ill.; Jefferson Medical College of Philadelphia, 1893; a Fellow, A. M. A.; served during the World War; on the staff of the Dixon Public Hospital; aged 61; died, February 8, in Hermosa, Calif., of toxic poisoning.

GEORGE E. ROLLINS, Peoria, Ill.; Rush Medical College, 1884; aged 68; died, March 21, of pneumonia following injuries received in a fall.

ASHER F. SIPPY, Chicago; Rush Medical College, 1892; an instructor at Rush, attending physician at Washington Boulevard hospital and associate attending physician at the Presbyterian hospital; member of Illinois State Medical Society; aged 69; died, April 18, of cerebral hemorrhage.

JACOB B. STOGOL, Chicago; Barnes Medical College, St. Louis, 1899; aged 75; died, February 28, of chronic nephritis and uremia.

CHARLES B. TAYLOR, Lincoln, Ill.; University of Louisville (Ky.) School of Medicine, 1881; formerly county coroner; at one time superintendent of the Lincoln State School and Colony; aged 72; died, February 16, in St. Clara's Hospital.

JOHN LETHERMAN TOMBAUGH, Odell, Ill.; Northwestern University Medical School, Chicago, 1903; aged 50; died, February 10, of hemiplegia due to cerebral thrombosis.

JOHN WEINLANDER, Chicago; Rush Medical College, Chicago, 1891; aged 70; died, March 27, probably of organic heart disease.

JOHN LOGAN YOUNG, Flora, Ill.; St. Louis University School of Medicine, 1905; member of the Illinois State Medical Society; aged 64; died, February 22, of a self-inflicted bullet wound.

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(Continued from Page 42)

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CONTENTS

Editorials (See Extended Table of Contents for Titles) . . 409

ORIGINAL ARTICLES

- On Being Ourselves. *William D. Chapman, M. D.,
Silois, Ill.* 423
- Symptoms of Acute Perforation of Peptic Ulcer. *E. P.
Coleman, M. D., Canton, Ill.* 427
- Treatment of Acute Gonorrheal Arthritis. *Dorrie F. Rud-
nick, M. D., and Hyman J. Burstein, M. D., Chicago* 430
- Sarcoma of the Kidney. *J. S. Grove, M. D., Chicago.* 432
- Spasm in Lower Third of Esophagus. *E. W. Hagens,
Chicago* 437
- Safetypin "Tongs" for Fingers. *Edson B. Fowler, M.D.,
Chicago* 438

- Nephritis in Children. Prognosis and Diagnosis. *C. Ander-
son Aldrich, M. D., Winnetka, Ill.* 439
- Epidemiology of Intestinal Diseases. *Lloyd Arnold,
M. D., Chicago* 445
- Treatment of Acute Epididymitis. *Joseph E. F. Laibe,
M. D., Chicago* 449
- Role of Viosterol in Pregnancy. *Garwood C. Richardson,
M. D., Chicago* 453
- Rush Call for Cooperative Clinics. *Joseph K. Narat,
M. D., Chicago* 461
- Acute Strangulated Meckel's Diverticulum. *Aaron
Neiman, M. D., Chicago* 466
- Aschheim-Zondek Test in Tubal Pregnancy. *Sidney
Klein, M. D., Chicago* 467

(Continued on Page 10)

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Editorials

THE EAST ST. LOUIS MEETING

The 1931 annual meeting of the Illinois State Medical Society at East St. Louis, May 5, 6 and 7, 1931, will go down in history as a highly successful meeting. The arrangements were unusually well planned, the meeting places very good, and everything was done to make the stay of the members and guests as comfortable as possible. Much credit is due the Committee on Arrangements and the general chairman. The Ladies' Entertainment Committee had something of interest to offer the visiting ladies throughout the meeting. A visit to Forest Park, St. Louis, in large and comfortable busses, to see the Zoo, Art Museum and Lindbergh trophies was arranged by this committee, and a motor cycle escort was furnished by the St. Louis Police Department. All guests were well cared for by the Hotel Committee, and no complaints at the service received were registered. The Commercial and Scientific Exhibits shown in the Ainslie Shrine Temple were well arranged and intensely interesting.

The scientific exhibits were unusually good, and deserve much credit for the success of the meeting. The exhibits prepared jointly by the University of Illinois College of Medicine and the Illinois Department of Public Health were unusually interesting, and visited by many people. One evening during the session, they were open to the teachers, nurses and professional men interested in health work, and hundreds of people availed themselves of this opportunity to see the exhibits. Many other interesting scientific exhibits were shown which attracted much attention, and which received considerable praise from those in attendance at the meeting.

The registration was very good considering the present economic conditions affecting the medical profession. Several hundred visitors at-

tended several of the sessions and enjoyed the programs.

The general sessions and the president's dinner were well attended and greatly enjoyed.

It was very unfortunate that the President-elect, R. R. Ferguson, was unable to attend the meeting, as he had recently had a serious surgical operation, and was convalescing at the time. The House of Delegates sent a telegram of felicitations and best wishes for a speedy recovery. President Chapman at the closing meeting of the House of Delegates announced that he would go to Chicago within a few days and personally induct President-elect Ferguson as President of the Society.

The meetings of the House of Delegates were well attended, the full voting strength for the session being 110. A considerable amount of business was transacted by the House at both sessions, and the meetings were conducted harmoniously at each session.

A complete report of the transactions of the House of Delegates will appear in the July issue of *THE JOURNAL*.

The following officers, councilors and committees were elected by the House of Delegates at the second meeting.

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The House of Delegates gave a preferential vote for Springfield for the 1932 annual meeting, the definite arrangements and decision to be made by the Council at the June meeting.

Springfield was the only city which extended an invitation for the next meeting.

It was the general opinion of all in attendance at the 1931 annual meeting, that East St. Louis, the St. Clair County Medical Society, the Committee on Arrangements, the General Chairman, Ladies' Entertainment Committee, and all co-operating committees, individuals and organizations, deserved much praise for the success of the meeting, one of the most enjoyable meetings the Society has ever held.

INDUCTION OF PRESIDENT-ELECT R. R. FERGUSON

The by-laws of the Illinois State Medical Society state that the president-elect shall be inducted into the office of president at the close of the last meeting of the House of Delegates at the annual meeting by the retiring president. President-Elect R. R. Ferguson was unable to attend the meeting at East St. Louis on account of the fact that he recently underwent a serious abdominal operation.

When the conditions were stated by President Chapman to the House of Delegates, it was unanimously decided that the retiring president should go to Chicago soon after the meeting and induct the president-elect into office. On Tuesday, May 12, 1931, Dr. Wm. D. Chapman and the secretary went to Chicago, called on Dr. Ferguson at his home, and the induction ceremonies were completed there. Dr. Ferguson, the new president of the Illinois State Medical Society, assured the retiring president and the secretary that it was his earnest desire to fill the office of president to the best of his ability, and for the best interests of the Society, the best State Medical Organization in the Country.

The special committee calling on Dr. Ferguson is happy to report that President Ferguson is making a most satisfactory convalescence, and that he hopes to return to his work at a very early date.

The induction of the president-elect of the Illinois State Medical Society is a General Session, according to the by-laws, and we desire to make this a supplementary report to the delegates seated at the 81st Annual Meeting, held in East St. Louis on May 5, 6 and 7, 1931.

WILLIAM D. CHAPMAN, M.D.,
HAROLD M. CAMP, M.D.

EVERY DAY THE DOCTOR DISCOVERS SOME NEW ANGLE OF CONTROL AND OF SUPPRESSION AGAINST WHICH HE MUST FIGHT. TOO MANY LAWS AND TOO LITTLE RE- SPECT FOR THEM IS AMERI- CAN PLAGUE

The United States is confronting the necessity of advance in legislation by repealing thousands of the hampering handicapping laws put on the statute books within the last twenty-five years.

Unless this is done and that with speed the long winded bunch of theorists and reformers, utopian dreamers and idealists stand a fair chance of seeing the statute books themselves repealed in all their entirety. Russia, the great, glorious and magnificent empire of gilded barbarism, reared on tremendous natural resources, went the way of the dead through too much aristocracy. The United States, the grandest example of humanitarian, self-respecting government that the civilized world has ever known seems bent on trailing Royal Russia through too much attempted democracy.

We started out with a constitution that was brief, pithy, to the point and flexible. Asserting that God had created all men free and equal. This almost sacred document so arranged its provisions that a man was given a chance to prove himself capable of being a respected member of a group of self-respecting, sane men.

And the whole experiment started, constitution and all, if memory reminds aright, because a shortsighted British king wanted his peaceful colonists to pay a tax on tea. And that small, almost casual levy was the last straw the patient colonists could stand.

What, in the name of all common sense, would Patrick Henry say if he came back to earth today?

He would find not only tea taxed but the very country that he and his associates sought to rid of imposts, staggering under more laws, more levies, more handicaps and more bureaucracy than did France itself when the streets ran red and Mirabeau and Danton called the turn on a situation that made France the keystone of European governmental crises.

So far back as 1925 George Higgins Moses, senior senator from New Hampshire and a patriot of the brand that made America pros-

perous, came frankly out at a banquet in Chicago and remarked that "In two years the state legislatures and the 68th Congress passed 59,000 statutes. Not content with the present lamentable record for law making the 69th Congress is going it one better. In the first nine days of its sitting the 69th Congress had introduced 10,000 pieces of legislation. Instead of 'E Pluribus Unum' the national motto has become 'Pass the Buck.' This buck passing begins in the town council. It winds up in congress."

What the Senator said then is truer than ever today. And the medium for buck passing is "yet another law." And the greater portion of these laws seem to simulate preachment for a democracy though they mean it not.

With about one out of every eleven citizens on the national or community political payroll it does not become the average United States citizen to look askance at figures from soviet Russia. In a recent article in the *Chicago Daily Tribune*, the newspaper's correspondent in Russia, Henry Wales, cited figures to show that brave as is the struggle beyond the Caucasus the misguided citizenry are finding their over bureaucratized democracy a sad failure. Russia seems to have exchanged the slavery of the tzars for the slavery of the soviet. Paternalism sticks its nose into the most intimate of family affairs and relationships under the false hypothesis of "For the good of the state." And it is a similar idea of political exploitation of the individual for the benefit of the political payroll that the payroll contingent endeavors to install in the United States.

There is no party line in this revolt of the thinking patriot from the curse of standardization and over statutization. After all the state is no greater than the individuals who are its components, nor are the resources of a state richer than the resources of these individuals. National wealth is individual wealth summed up. National government should be the grouped government of individuals and not the group government of individuals by an individual group. Consider this statement thoroughly. To paraphrase the familiar advertisement, "It's marvelous what a difference a little 'D' makes."

An individual group government means a bureaucratic government and a total differentiation and complete departure from the constitutional principle of "government for the people, by the people and of the people." When this bureau-

cratic government comes from a group organized with an eye to its own interests first the result forecasts its own conclusion. The world has yet to produce a group of such altruistic practice that the theories of the Great Nazarene come first upon this earthly sphere. The nearest approach we have had to that was found in the little group of patriots who drafted the Declaration of Independence and the Constitution of the United States of America and of their patient followers through peace times and war times down the decades since 1776.

The strength and innate vitality of those two great documents of human liberty, human understanding and human feeling have been put to the acid test. And never more crucially than during this past two decades. The years that made the United States of America the head of manufacturing nations of the world unfortunately found the country so bent on over production that it did not draw the line even on the production of handicaps, such as the most interfering, meddling and strangulating legislation.

Being a nation founded on the humanities it is not surprising that these interferences should seek foothold in the profession dealing most closely with the humanities,—the practice of scientific medicine and the scientific care of the sick.

To this end the statute books of the country reel with ignorantly devised and dictated laws tending to take the practice of medicine, the care of the sick, the prescribing of medicaments and the general conduct of prophylactic therapy out of the hands of the physicians and into the paws of the politicians.

Alexander Pope's famous couplet, "A little learning is a dangerous thing; Drink deep or taste not the Pierian spring" never found more apt application than in the case of the medical profession and its lay dictators. The passion for telling the doctor how to run his business is a false conception emanating from the desire of the medical profession to impregnate the public with the knowledge necessary to produce competent community sanitation on the part of individuals and householders.

If let alone it would probably have run its course, or to dip again into Elizabethan English to have "died a-borning." But the keen and able eye of the political aggrandizer saw in this situa-

tion a foundling idea that promised rare results, and proved feasible for ready adoption.

With the drastic consequences the medical profession has been wrestling ever since. Public health service, a sine qua non of the day, has been kept only partially in the hands of medical men. This situation however shows more signs of clearing up than does any other phase of lay dictation of the practice of medicine.

Not only are charlatans, quacks and ism-practitioners finding their second wind through statutes, laws and political affiliations born of flush pocketbooks and ready tongues but the menace of the lay dictation, aye even of the lay practice of medicine, is rapidly attaining herculean proportions. This growth finds its greatest nourishment from the statute books, the legislative halls and the political jobbery and general machinery that knows but one creed, "Rule or Ruin; Make Jobs to Get Them."

It is not the purpose of this JOURNAL to urge the passage of statutes to add to those already lying inert, unread and unenforced on the legal tomes and land. But it is the purpose of this JOURNAL, now as always, to stand up for the rights of the American citizen and for the sanctity of the medical profession as well as for its duty to individual and general health. Better for the country a million times over if every statute were dumped into the Mississippi river and the Declaration of Independence and the Constitution of the United States alone left with which to govern the most remarkable and progressive nation the world has known. "The best government is the least government." Perhaps with that background the man who knows his business, the man trained scientifically to practice medicine might be allowed so to do, without being told by a wealthy butcher or a retired brewer as to how he should treat typhoid fever and how much he should charge for a maternity case.

As it is now the tide of the statutes runs on and on like a wolf pack. The statutes continue to multiply like flies. Every day the doctor discovers some new angle of attempted medical control and of suppression, against which he must fight and for which himself and other overburdened taxpayers must pay. Nor does this payment once out of a thousand times go into the pockets of someone scientifically competent to administer the service for which the payment is

made. Rather does it go to some politician, or some time server needing a job or to some corporation yearning to add yet another unit to its meed of power and despotic sway. Tax slavery is a crime of the first water; but the enslavement of science is blasphemy of the humanities.

MEMBERSHIP AND FELLOWSHIP IN THE A. M. A.

In an editorial on this subject in the April JOURNAL the statement was made that "Fellowship dues and subscription to the JOURNAL are both included in the one payment of \$5, which is the cost of the JOURNAL to subscribers who are not Fellows."

The annual fellowship dues are \$7.00. The correct amount was stated later in the article.

THE FAMILY DOCTOR GOING TO DIS- APPEAR FROM AMERICA. I HOPE NOT

That "blessings brighten as they take their flight" finds new polish on its triteness as the community at large awakens gradually to the loss on all sides of the family physician. Now that the ranks of this faithful, self-sacrificing citizen are being depleted but not replaced by the younger generation on all sides arises a hue and cry as to why and what.

The answer is to be found partially in another old but wise quotation, "The laborer is worthy of his hire."

Among the numerous contributions appearing recently to augment public knowledge of the "family doctor" and what he did and why he is not doing it now, attention is brought to an article on this topic printed in the *Saturday Evening Post* under date of May 16, 1931. It is signed by Dr. Winford H. Smith, director of Johns Hopkins Hospital.

An idea of the trenchant, competent fashion in which Dr. Smith epitomizes the situation may be gained from these opening paragraphs of the article:

"Throughout the land for the past twenty-five years physicians have been vanishing from their fields of practice. In Philadelphia since 1906 the number of physicians has decreased from 210 to 190 per 100,000 population. In the same period of time in the whole of the United States the number of physicians has declined from 143 to 126 per 100,000 population. This piece of statistical information does not give the complete picture, however, for it takes no account of the sharp and growing trend among those with a medical education

to specialize; and the specialist, whatever he may be, is not a family doctor.

"Some persons who have given their attention to the situation have expressed the belief that the family doctor is going to disappear from America. I hope not. Indeed, *no matter to what lengths we go in the mechanization of our country, we certainly ought to stop short of the family doctor unless we are prepared to go a step farther and abolish families as well.* Nevertheless, there are fewer physicians of all kinds and a great deal fewer family doctors now than twenty-five years ago. Who can say what this situation will reveal when it is examined twenty-five years hence?

"Shoulder-high on the wall of an apartment house in an Eastern city where I sometimes visit there are shadowy letters etched in soot. For a dozen years an oblong plate of brass cut in the manner of a stencil was fastened there. Now this sign has been taken down, and against the newly revealed wall surface is a partially blurred ghost of the legend it once displayed. Rains have begun to erase the last bit of evidence that once this wall sheltered the office of a physician, and all that is to be deciphered now is the beginning of the sign: Dr. _____"

"There is a deep significance for the American people in that memento of a vanished physician. It is as full of meaning for those with understanding as a bleaching skeleton at a desert water hole. Even though the family doctor who once displayed that sign were dead, or had retired when he became rich by inheritance, the significance is not impaired. The significance consists in the fact that no other physician, not even a newly educated one, saw any opportunity in the vacancy.

"Closely packed in the region thereabouts are thousands of families hived in apartment houses. Children are being reared; women are having babies; there is illness—plenty of illness; indeed, there is too much illness, in the light of the knowledge of modern medical science and the advances made in the art of healing. Yet the doctor has gone and none has taken his place.

"An investigator searching for clues to aid in the solution of that mystery could find one dominating the sky line of the neighborhood. It is a vast new building, or, rather, a group of buildings sheltering a splendid organization designed for the saving of lives. Several old hospitals were merged to establish this one on a basis that permits great economies in operation. There are hundreds of beds, regiments of nurses, a variety of intricate mechanisms and appliances, operating theaters, laboratories, electro-cardiograph machines, x-rays, fluoroscopic screens, and other things that would have seemed to our ancestors to be the devices of wizards. Without the intelligence of doctors, the whole costly enterprise would be just so much waste, but with doctors in control it is a marvelous institution. It is a tool designed by doctors and for the exercise of the skill of doctors, and yet one of its activities is the reason for the disappearance of that family physician previously referred to from his field of practice.

THE COSTS OF MEDICAL CARE

"A notable feature of this great hospital is its out-patient department. An out-patient department is some-

times spoken of as a clinic. Actually it is an arrangement whereby a person supposedly impoverished, who might in ordinary circumstances seek medical service at a doctor's office, or by having a doctor visit that person's home, gets advice and treatment at the hospital. Call it out-patient department, or call it clinic if you will, what a neglected family doctor is likely to call it is competition."

MENACE TO MEDICINE FROM ECONOMIC SINS DEMANDS IMMEDIATE AND URGENT CONSIDERATION

The Trojans, alarmed when their enemy leaped at them from out the famous wooden horse, were not taken any more aback than has been the great and sacred science of medicine by the invasions of the well-meaning but criminally blundering laity upon the province of the profession. That the entry has been made through the side of economics makes the encroachment none the less drastic.

Thinkers among the profession are sounding the alarm to their confreres. Among the trenchant remarks upon the situation have come articles dealing with this menace from physicians all over the country.

The ILLINOIS MEDICAL JOURNAL wishes to call attention to the epitome of the situation as set forth in a recent issue of the *Bulletin of the Wayne County Medical Society* by Dr. L. L. Bigelow of Columbus, O.

With pungent force the remark is made bluntly enough:

"The crusade against the high cost of medical care is being waged in behalf of the people of moderate means, the so-called variously defined middle class in which, according to the limits of the annual income mentioned, the vast majority of the physicians in this country find themselves. Has any estimate been made of the volume and extent of the purchases made by the people of this class of those commodities listed under 'incidentals' in the allocation of the family budget—with which medicine must compete and on which big business relies for its market? Do the purveyors of these non-essentials say to the people of this class, 'you *must* have food; you *must* have shelter; you *must* have clothing; and furthermore, since death comes to all men, you must expect to have those injuries and diseases which are the natural forerunners of death; and when these injuries and diseases fall upon you, you *must* have medical care if you are to prolong your days in the land or to regain your usefulness: and therefore, until you are in a position to satisfy these basic needs, we cannot sell you this auto, or this radio, or this modern non-essential whatnot?'

"We know that in the mad scramble for the American dollar few such interviews as this take place. We know, on the contrary, that the members of this middle

class are eagerly solicited to buy and buy and buy, on credit—five dollars down and so much at stated intervals, their future earning capacity being committed for months ahead, and then, when through illness or other misfortune, payments lapse, the goods are recalled, the money paid in is retained, and the unfortunate middle class purchaser is left to bewail the high charges of the physician who must now step in and rehabilitate him to the point where he is again able to make partial payments, buy on credit, and mortgage his future anew.

"A committee on the cost of medical care, by its very title suggests to a suggestible public one, at least, of its inevitable conclusions, for which it is not necessary to wait five years or spend a couple of million dollars. The title means, of course, the 'too high cost of medical care,' for otherwise why enter upon the inquiry? No surveys are in progress designed to convince the public that it pays too little for what it needs, or for what, through a frenzy of advertising for the purpose of stimulating consumption, it has been taught to believe it needs. *I know of no philanthropies or foundations contributing to surveys designed to make the public restive about the fifty millions it pays annually for chewing gum, the two hundred and fifty millions that go for musical instruments, or the five hundred millions for jewelry, or the eight hundred millions for cigarettes, or the thousand millions it pays for candy, or the two thousand millions it pays for automobiles. No great concern is apparent over the two hundred millions spent annually for patent medicines; and the charge of W. E. Humphry, Federal Trade Commissioner, that 'the publication of fraudulent advertising in magazines and newspapers costs the American public about five hundred million dollars annually,' falls on ears that are strangely deaf.*

"The traditional basic divisions of the family budget provide for food, shelter, clothing, light and fuel, and incidentals. The fundamental necessity of food and shelter and clothing is axiomatic, but medical care, the most fundamental necessity, if we agree that nothing has value or existence except for human life, has to take its chances among the incidentals that have multiplied enormously during the last quarter of a century and are constantly increasing in number and cost.

"The memory of most of us here will go back to the time when gasoline cost seven cents a gallon; when one nurse took care of a patient day and night for twenty-five dollars a week; when a good private room at the hospital could be had for twenty dollars a week, and the best for thirty-five dollars; when a diagnosis could be arrived at or approximated without the multitude of costly procedures which the public has been taught to believe are necessary if it is to get a square deal, and so on down the line. It is not here intended to intimate that the increased cost of these various factors entering into the expense of medical care, are excessive and unjustified. What I do want to point out is that my observation, and I dare say your own, will support the statement that the doctor, whose contribution is one of the absolute essentials in the whole scheme is, for the most part, making substantially the same charges for his services that he did two decades ago. Is anyone so

naive as to believe that any readjustment involving a reduction in the cost of medical care is going materially to affect the price paid for those items just mentioned, and the long list that may be added? The probability is that the relief demanded will be sought for in an attempt to reduce the doctor's income, notwithstanding the inevitable deterioration in his personal worth and the value of his service that will come from pushing him downward in the social and economic scale.

"It is held up as a reproach to medicine that it has no system of cost accounting that will let the physician know what it costs to make a call, or a surgeon to perform an operation. Has the great orator whose presence packs the auditorium, a system of cost accounting that determines the material reward the public is willing to give him for his effort? Does the inspired preacher know what it costs him to prepare a sermon, or the author of a successful book, or the painter of a great picture—do they know the exact value in dollars and cents of the effort that went into their work? Their hopeful imitators spend twice the time and effort on their orations, sermons, books and pictures, yet none there are, or few, to do them honor and fix by their demand or patronage the value of their output. Is it not right and natural that the public should beat a pathway to the door of a man who makes a better mousetrap, even though his house be set in the wilderness?

"My argument may be subject to criticism, but what I wish to point out is that in the realm of human relationships we cannot expect to take over and apply the mechanisms that have proved their worth in the realm of material things, and get the same answers.

"It costs no more in preparation, time, or effort for a surgeon to relieve a strangulated hernia and save the life of a common laborer, whose continued existence, however important it may be to him, is of little consequence to the world at large, then it would cost to perform a similar service for Mr. Hoover or Ramsay MacDonald or Mussolini, with all that the outcome would involve in these instances. The value of the service in these extreme cases and in those of like nature between these extremes, rests upon the application of the service: and it cannot be determined and should not be determined by a system that will attempt to fix the cost, and then add the ten or other per cent. that the wisdom of a bureaucratic commission shall decide to be adequate.

"Is it any wonder if a suspicion is sometimes engendered that the tender solicitude over the financial worries of this class from the high cost of medical care, finds its origin in a desire to release the money thus expended for other purposes? This is an unjust and unworthy aspersion on a group of individuals who with highmindedness and sincerity are honestly seeking to better a situation, which will, whatever is done about it, furnish then, as it does now, injustices and inequalities. But the effect will be there just the same; if you do not have to spend a hundred dollars for medical care because it is to be furnished by society, then you have a hundred dollars available for other purposes.

"There is in Ohio an industry that maintains it cannot compete with a similar industry in a neighboring

state and continue to pay the eight, ten, and twelve dollars a day it at one time paid its workmen. The workmen have been induced to return to work at a reduced wage and the difference in their earnings is equalized by the provision to them and their families of complete medical care, at a price to the doctors that is determined by the employer. Thus medicine shoulders a burden of industry.

"We cannot unfortunately, deny instances, far too many, where rank injustices are perpetrated by members of our profession. When a surgeon charges a father who earns \$40.00 a week, \$300.00 for draining an empyema in one of his four children he pours oil on the flame of discontent, even more than does the fashionable specialist who charges the neurasthenic wife of a millionaire \$5,000.00 for telling her after a week's investigation that she is three pounds overweight for her height and age. The former instance means desperation, even tragedy; the harmful result of the latter is the gradual development in the public mind of a belief that the multiple, elaborate, time consuming, and costly procedures that are called for in the diagnosis of the obscure case, must be utilized in every case; and as this is manifestly beyond the reach of the man of moderate means, the conclusion follows that the only solution is the provision of medical care at the cost of the state.

"Neither of these examples is typical of the daily practice of the many thousand physicians who make up the medical profession in this country. Some other method must be found to curb their outrageous commercialism than one which bids fair by a base and demoralizing suppression of individualism to harm irreparably a profession which has been humanity's best friend through the ages.

"A large measure of the physician's reward lies in the knowledge that he is serving his vital purpose. It must be recognized, however, that the physician is subject to the same economic forces that weigh upon the rest of the society, has the same needs, desires and ambitions, and cannot be expected, if he is to continue to live and render this service, to find his sole reward in the satisfaction of conscience. When a man breaks his leg, has a strangulated hernia, develops an acute appendicitis, comes down with pneumonia or other serious illness, he does not need a victrola, or an automobile, or a radio, or an electric refrigerator, or oriental rugs, or any of the other non-essentials, which a mania of advertising has made him think he wants, and for which he has mortgaged his earnings for the next twelve, or eighteen, or twenty-four months. He does not even need a suit of clothes; and, however necessary they may be to insure a vigorous healthy throat and a fine speaking voice, we may be pardoned for doubting if he can be helped by any particular brand of cigarettes. What he needs and what he must have, if he is to survive so that he may furnish in his individual and collective person a market to absorb the production of big business, is medical attention—not cheap medical attention furnished by a dispirited, disinterested, overworked member of a profession, chained, shackled, socialized in obeisance to an industrial worship of standardization and volume pro-

duction; but a high grade medical service by a physician who knows that his hope of material reward and professional advancement lies in his ability to satisfy his patient, the individual immediately and vitally concerned, and not some third party whose major interest is to keep down costs, to get more and more for less and less.

"It is being increasingly recognized that man is in very truth a part of all that he has met; that the social, economic, spiritual, and intellectual forces that impinge upon him, do profoundly influence and modify the adequacy of his reactions to those stimuli that have, perhaps, heretofore, too exclusively engaged the attention of the physician. It may further be added in the light of studies in heredity that an individual is in some measure a part of all his ancestors have met, that he comes into this world with germ plasm potentiabilities, good or bad, that are also going to play a not inconsiderable role in his environmental response.

"These observations apply not only to individuals but to families, and larger and larger groups, even to nations. They may well be the reason for the foundation of institutes of human relationships where, notably as at Yale and the University of Chicago, great universities are mobilizing their forces as represented by the departments of law, medicine, economics, political science, history, sociology, anthropology, psychology and philosophy in a program of research, which is to involve their cooperative attack on social problems, in the effort, as Professor Marshall says, 'to understand social organization and to provide the data and principles upon which the shaping of this social organization must be founded.'

"To expect the physician, however, to be familiar in these multiple fields, with their unnumbered variables, incapable of that precise, experimental, scientific study through which in his own domain, he has made such notable gifts to humanity; to enlarge thus the problem of medicine out of all reason; and to judge and condemn the doctor by what he faces and not by what he has overcome, is manifestly absurd and unfair.

"In numerous articles, in the daily press, and in the weekly and monthly magazines of national circulation, the public is being insistently and persistently assailed with graphic accounts of the short comings and failures of medicine, and its exorbitant charges. 'Something must be done about it.' The world is ruled by ideas that have the power of penetration and lodgement, or that can be made to penetrate and lodge. These writers, for the most part non-medical so-called experts, or those who are responsible for their lucubrations are well aware of the physiological principle of the summation of afferent stimuli; and so the barrage is kept up, in the hope that the threshold of national stimulation will be reached, when something will be done about it. *What that something is to be, is a matter of vital concern to the medical profession, and of still more vital concern to the public it serves.*

"If poverty and crime, unemployment and social unrest are due to a miscellaneous worthlessness of medicine in an economic world, of which every normally-attached tonsil, flat foot, deviated septum, or other

remedial defect one meets on the street, is quite convincing proof, then the problem of these institutes of human relationships is going to be tremendously simplified. *Persuade through propaganda a gullible public that the easy road to the promised land where there shall be no more sickness, or sorrow, or doctor bills, lies through the socialization of medicine, and the deed is done.*

"Where in all this current discussion has it been brought out that the medical profession, dedicated to the alleviation of human suffering and the prolongation of human life is ministering to the fundamental basis of all values of every kind—spiritual, intellectual, esthetic and material?

"A thousand phonographs playing in an uninhabited world would be like no sound, for there would be no human ears to translate senseless ether waves to music. Great libraries in an empty world would be meaningless collections of wood pulp and ink, for there would be no human minds to give their contents meaning and value. All the gold that was ever mined would be only a blot on the landscape, if there were no people whose living gave it potentiality. Landscape? There would be no landscape, if there were no people to see it.

"In such an unthinkable world there would be no heat, or cold, no light or darkness, no courage or cowardice, no beauty or ugliness, no virtue or sin. There would, indeed, according to compelling philosophy, be *nothing* in such a world; for all things—those unseen things, which Washington Gladden used to call the real things, and those material things, which seem to have an objective existence, live only, in the final analysis, in the hearts and minds of men, and women and children.

"If this conception seems fantastic, ask yourselves what would happen, if suddenly, by some supreme fiat, it were true, and universally believed to be true, that no more babies could ever be born in the world. What would be the value of those cherished possessions, which you now prize so highly, in a week, a month, a year? So great an anguish and despair would settle down upon mankind, that in ten years half the people of the world would have committed suicide and the remainder would be insane.

"It was no accident that Jesus made his appeal to the people of his time through the ministry of healing. It was no accident that a traveler, from Samaria to Jerusalem, who came upon the man that had been beaten and robbed and left by the roadside to die, and bound up his wounds, won for himself that day a secure place in the affections of mankind, and has been known for 2,000 years, as the *Good Samaritan*.

"The fundamental and perennial appeal of medicine as a profession abides, then, in an instinctive appreciation that its function to save and prolong human life, the source of all values, is a ministry to an elemental need.

"May we expect, in the medical profession, any more than in any other profession, pride in achievement long to survive divorce from hope of reward? We may be born free and equal in this country, but that means, at least we hope it means, freedom and equality before the law—and not equality in natural and acquired abilities.

We recognize differences among ourselves. We appreciate with the psychologists that we come into the world, richly or poorly endowed with intelligence, and we find it consonant with natural law that those among us who have verbal, or motor, or social intelligence in degree or combination greater than the rest of us, should have rewards commensurate with their abilities; and we further insist that any policy or system that will not evoke and encourage these natural abilities to the uttermost, but that will on the contrary, repress and discourage their exhibition by confining reward to the narrow limits, that will be deemed, under a system of State Medicine, adequate for the least among us, is a futile attempt to fly in the face of the accumulated experience of the ages, and a venture doomed in the last analysis to defeat the very purpose for which it was inaugurated.

"These are some of the noci environmental influences that are impinging upon the medical profession. Far more depends upon the adequacy of our response than the mere fate of 150,000 doctors. Weakly to submit in the face of the claim that the socialization of medicine is inevitable, and that 'we might as well try to make the best of it,' is a pusillanimous surrender unworthy of our heritage. Better for us to adopt the attitude of that ancient Aegean mariner, who, tossed by the storm, prayed to Neptune, saying, 'Oh Neptune, thou canst save me if thou wilt; thou canst sink me if thou wilt; whatever comes, I will keep my rudder true.'"

THE FAILURE OF SOCIALISM IN MEDICINE

The A. M. A. London letter under date of April 18, 1931, contains data relative to the evils of medical socialism. We quote:

In the house of commons the minister of health, Mr. Greenwood, in opening the debate on the vote for the expenses of his department, said that the increased expenditure on sickness and disablement benefit was causing concern. It was difficult to assess the various factors causing the increase. He was not satisfied that there had been any substantial deterioration in the general health. It was important that every insured person should go to the physician in the early stages of illness and take full advantage of his rights. But behind all legitimate causes every one associated with approved society work knew that there was a certain amount of laxity. The government was issuing to the societies memoranda which he hoped would be of assistance in certification and the supervision of claims for benefit. A commentary on the minister's rather guarded reference to "a certain laxity" is furnished by the fact that the ministry of health has found it necessary to issue new regulations rendering the transfer of an insured person from the list of one panel physician to that of another more difficult. Before, all that was necessary was to give a fortnight's notice to the insurance committee. Now the insured must obtain the consent of his present physician and also of the one to whom he desires to be transferred. Of, if he does not wish to do that, he must give a month's notice to the committee,

and the transfer can then be made at the end of the quarter. What led a labor minister to curtail the liberty of the insured was complaints from the friendly societies of excessive sickness claims resulting from patients obtaining certificates from a physician to whom they transferred after refusal from their previous one. *Here, then, is the demonstration of the failure of socialism in medicine as in all other forms, and incidentally of its impairment of liberty.* "Free choice of physician" was one of the slogans with which the insurance act was ushered in by Lloyd George and it of course exists in other medical practice, but it works wastefully under socialism.

JUGGLING MATERNAL MORTALITY STATISTICS

The following interesting item is taken from the Bulletin of the Medical Women's club of Chicago. We quote:

MATERNAL MORTALITY

The Chicago Council of Medical Women at its May 1 meeting had a symposium on maternal mortality in obstetrics. We were much interested in the report of the veteran obstetrician, Dr. Effa V. Davis. Dr. Davis has been making an intensive study of this vital question in Chicago for the year past and is to continue for another year. We are grateful that such a study is in the hands of such a doctor.

The Chicago report is very cheering. Maternal deaths for a year last past in Chicago were 261 in number. Of these more than 20 per cent. were due to abortions and ectopics, which are to be deducted for the obstetrical death rate, leaving 200. The rate was reported from this study to be 3.2 per M. or 0.32 per cent. This is creditable indeed and certainly takes the wind out of the sails of those who use statistics for promotion and propaganda.

LORD RIDDELL SAYS THAT IN ENGLAND SERIOUS ISSUES ARE AT STAKE, INVOLVING THE HEALTH OF THE PEOPLE AS WELL AS THE EDUCATION, STATUS AND WELL BEING OF THE MEDICAL PROFESSION

American Medicine, March, 1931, speaking of the medical profession in England presents data worthy of serious thought. We quote:

At the opening of the winter session of the medical schools in England, and especially in London, some of the addresses are generally pregnant with interest, touching on matters which concern both the medical profession and the public. Among the addresses delivered, last fall, none was so searching and illuminative as that of Lord Riddell at St. George's Hospital. Lord Riddell possesses the acute brain of the born organizer and business man, and as the chairman of the Board of Directors of the Royal Free Hospital, knows thoroughly whereof he speaks as far as hospital man-

agement is concerned. Indeed, outside his business interests, he has devoted his time and money to the improvement of hospitals and to any movement tending to promote the public and individual health. He is, therefore, able to regard the situation of the medical profession from the points of view of the laity and to a lesser extent of the profession itself. The *raison d'être* of his address was largely the proposal of the British Medical Association to extend the compulsory panel system which has been in vogue in Britain for many years to the dependents of insured persons, a proposal which he views with apprehension. There are now 14,000 panel doctors, or more than a third of the total number of medical men in the country, and they attend to the needs of a considerable proportion of the population. In the course of his critical address, Lord Riddell pointed out that the intelligent layman viewed with amazement and anxiety, existing conditions regarding panel practice and the medical services generally. The panel doctor was a sort of slave, employed or, at any rate, paid by commercial or semi-commercial institutions. He must prescribe in accordance with certain rules. If these were transgressed, he was subject to serious fines and other penalties. He was also subject to penalties if he were too free in granting certificates entitling patients to disablement allowances. On the other hand, the less he did for his patients, the easier time he had. Except in cases of gross negligence, there was no penalty for underprescribing or inattention. Most of his serious cases, and a good many that were not serious, were passed on to or drifted into the out-patients' departments of the voluntary hospitals. It would be interesting to discover how many of the 14,000,000 panel patients were treated largely at the expense of the charitable public, and for what diseases. It was certain that, but for the voluntary hospitals, the panel system would very soon completely break down. Hundreds of thousands of people were making voluntary contributions to entitle them to voluntary hospital treatment. These patients were treated by doctors mostly unpaid, or who received very meagre salaries. Side by side with this muddle, there was a vast system of municipal hospitals which provided not only for lunacy, fevers and chronics, but also for general medical and surgical cases. In the opinion of the speaker, the whole subject of general and panel practice demanded careful investigation by an independent commission, for in addition to the various uncoordinated services mentioned, there were numerous others, in the shape of maternity clinics, child welfare clinics, school clinics, etc., all of which should be coordinated as part of a more economical and efficient system. Lord Riddell stressed the point that serious issues were at stake, involving not only the health of the people, but the education, status and well-being of the medical profession, which were matters of national importance. The above sentiments represent those of, perhaps, the majority of the laity and many of the medical profession in England. The panel system which provides treatment for 14,000,000 of the population is open to certain abuses inherent, perhaps, in the system itself. It is recognized that the hospital system is in a muddle and should be

reorganized and that from the economic standpoint, the medical profession as a whole is in an unsatisfactory position. This phase of the matter will be dealt with at some length later. It is well that the question should be thoroughly ventilated and the initiative of Lord Riddell may be commended as the performance of a public duty and service.

PHYSICIANS TREAT ONE-EIGHTH OF THE POPULATION IN THE UNITED STATES FREE OF CHARGE

Dr. Charles Gordon Heyd in the *New York Medical Week* says, "that as a minimum the medical profession donates \$365,000,000 yearly in gratuitous medical service." We quote:

It is claimed by competent statisticians that physicians treat one-eighth of the population of the United States free of charge. Since at all times there are two per cent. of the population incapacitated and about four per cent. physically impaired, it follows that from 375,000 to 500,000 persons are daily treated without charge. If only \$2.00 per person were charged for a treatment, the sum total monetary equivalent for the contributions annually made by physicians in the form of free medical treatments would be \$365,000,000.

SCHUYLER COUNTY MEDICAL SOCIETY INVITES YOU

Dr. Wm. Englebach of New York City will deliver an address before the Schuyler County Medical Society on Saturday evening, June 20, 1931, on "Diagnosis and Treatment of Endocrine Disorder."

You are cordially invited to attend this meeting and hear a wonderful subject discussed by a very able authority.

Meeting is to be held at "The Virginia," Scripps Park, Rushville, Illinois. Ladies invited. Dinner at 6:30 P. M. Please mail dinner reservations by June 18, 1931.

C. M. FLEMING, M. D.,
Rushville, Illinois.

STATE MEDICINE IDEA ASSAILED

The already overburdened taxpayers of the state will think a second time before voicing approval of a plan advanced in some quarters for the establishment in Michigan of a department of public medicine and health, according to Dr. Angus McLean, widely known physician and member of the board of education.

"Let us see what that would mean to the taxpayers of this state," he said in an interview Monday. "The cost of such a department, I am sure would be a bar-

rier at the very start. Should 'state medicine' be accepted, each county would request a hospital. There are 80 counties in the state. (Three now have hospitals.)

EIGHTY HOSPITALS WOULD BE ASKED

"Eighty counties would require a hospital of 100 beds each at a cost of \$3,000 a bed—a total cost of \$24,000,000 without equipment. The state is now bonded to its limit and I want to ask, how could this money be raised? The interest on the amount at 5 per cent would be \$1,200,000 a year.

"Statistics show that it costs \$5 a day to maintain a bed or \$500 a day for each hospital; the annual total maintenance of hospitals is \$14,400,000. If 4,000 physicians are employed at say \$10 a day each the annual amount would be \$14,600,000 or a grand total for cost, maintenance and physicians' salaries of \$30,200,000 annually. It would be necessary to raise this sum by increased taxes, and we all know that we are now overburdened in this respect. Ten dollars a day is the minimum amount a physician could live on and keep an automobile, phone, etc. In Michigan there are 5,400 physicians. This would leave 1,400 to carry on their specialties and institutional work as at present.

"SALARIED DOCTORS LOSE SYMPATHY"

"In the past several years dehumanized medicine has been practical in closed hospitals and by state organizations. That is, the patient is known as number So and So, and he frequently does not even know the name of the physician who treats him, and physicians on a salary, I am sure, soon lose sympathy with suffering humanity. I am advised that a part of the physicians of our state are in favor of state medicine, but only a part and not a majority by any means.

"The commonwealth of Massachusetts, I learn through the press, has recently introduced into the house a petition for the creation and establishment of such a department 'for the purpose of furnishing a free and complete medical service' to the people of that state.

"The department would take over the duties of the department of public health and mental diseases and certain of the activities of the department of welfare and industrial accidents but the measure is meeting with no very pronounced support, I understand, because the objection has been raised there that is bound to be raised in any state that of imposing an enormous and totally uncalled for burden upon the taxpayers."—*The Detroit Free Press, Feb. 17, 1931—Bulletin Wayne Co. Medical Society.*

ANNUAL MEETING OF THE AMERICAN COLLEGE OF PHYSICIANS

The American College of Physicians will hold its Sixteenth Annual Clinical Session at San Francisco with headquarters at the Palace Hotel, April 4-8, 1932. Following the Clinical Session, a large percentage of the attendants will proceed to Los Angeles where a program principally of entertainment will be furnished April 9, 10 and 11.

Announcement of the dates is made particularly with

a view not only of apprising physicians generally of the meeting, but also to prevent conflicting dates with other societies that are now arranging their 1932 meetings.

Dr. S. Marx White, of Minneapolis, is President of the American College of Physicians, and will arrange the Program of General Sessions. Dr. William J. Kerr, Professor of Medicine at the University of California Medical School, San Francisco, is General Chairman of local arrangements, and will be in charge of the Program of Clinics. Dr. Francis M. Pottenger, of Menrovia, is President-Elect of the College, and will be in charge of the arrangements at Los Angeles. Mr. E. R. Loveland, Executive Secretary, 133-135 S. 36th Street, Philadelphia, Pa., is in charge of general and business arrangements, and may be addressed concerning any feature of the forthcoming Session.

THE HEARING ON THE ANTIVIVISECTION BILL

The hearing on the Antivivisection Bill, House Bill 453, which was drawn up to prohibit the use of dogs for experimental purposes, was held before the Judiciary Committee in Springfield the afternoon of April 14, 1931.

The pre-hearing campaign conducted by us was by necessity much more extensive than in 1929. The antivivisectionists were flooding the entire House of Representatives with their usual literature and were sending in petitions daily to the members of the Judiciary Committee. They claimed that they were going to have 100,000 names on petitions, but it is doubted now whether they had more than one thousand names on their petitions. During the two weeks prior to the hearing, our Society mailed to the representatives every other day a brief statement of fact relating to what science has done for the dog and what science by the humane use of the dog has done for man, and relating to the moral and ethical aspects of animal experimentation. Pamphlets covering the various aspects of animal experimentation, the views of eminent clergymen and educators, personal letters from friends of the representatives, letters from patients with diabetes and pernicious anemia, resolutions from various clubs, and letters from individuals having political influence were mailed to all representatives. In addition to this, the legislative chairman of the Illinois Federation of Woman's Clubs sent letters urging defeat of the bill. Resolutions were obtained from numerous organizations including seven Dog Fancier Clubs. One of the representatives made the statement that he had received more mail in regard to this bill than all the other bills together.

The support of the following organizations was obtained in opposition to the bill: 1. the universities of our State, 2. the Illinois Veterinarian Association, 3. the State Medical and Dental Societies, 4. seven Dog Fancier Clubs, 5. the Legislative and Public Health Committees of the Illinois Federation of Woman's Clubs, 6. the Executive Committee of the Congress of Parents and Teachers.

The following program of speakers against the bill

was prepared: Chairman of our group, Dr. John R. Neal, Legislative Chairman of the Illinois Medical Society; 1. Father Robert M. Kelly, President of Loyola University; 2. Professor A. C. Ivy, Northwestern University; 3. Dr. Lena K. Sadler; 4. Professor Robert Graham, University of Illinois Department of Agriculture; 5. Mr. Lawrence Williams, Dog Fancier; 6. Mrs. Gertrude Howe Britton, Executive Secretary of the Chicago Heart Association; 7. Professor Wm. F. Petersen, University of Illinois; 6. Dr. Otto Schmidt, President of the Chicago Institute of Medicine and the Chicago Historical Society; 9. Professor A. J. Carlson, University of Chicago. Other individuals who attended in opposition to the bill were as follows: Dr. T. E. Boyd, Loyola University; Dean D. J. Davis, Dr. Lloyd Arnold, Dr. C. I. Reed, University of Illinois; Dr. A. B. Luckhardt, University of Chicago; Dr. Andy Hall, State Department of Health, and others from that Department; a group of Faculty members from the State University at Urbana; Dr. Wm. H. Welch, Chief of the State Department of Agriculture; a group of graduate students from the University of Illinois and Northwestern University; Dr. Donnellan of the Illinois Dental Society; Mrs. Maude Adams, Mrs. Cowdin, and some eight other prominent club women of Springfield; Dr. Grace Wightman, Chairman of the Public Health Committee, Illinois Federation of Woman's Clubs.

There were only seven proponents of the bill present: Attorney Snigg; Mr. Richards, Secretary of the Illinois and National Antivivisection Societies; Dr. Clark, originator of the Cult of Sanitology; Mrs. Hunt and three other unknown persons.

When Bill 453 was called, one of the Representatives moved that it be referred to a sub-committee. Dr. Neal objected on the basis that we had fifty people present against the bill and had been promised a hearing. It was decided to hold the hearing. Then ten Representatives arose, stated that they had to leave, voted against the bill and left. A motion was made to take a vote of the bill without hearing it. But Mr. Igoe, who stated that he was against the bill, and was sure that speeches would not change a single vote, pointed out that the proponents of the bill should be shown the courtesy of being permitted to speak a few minutes. Both sides originally had been assigned 45 minutes. This amount of time was objected to and reduced to twenty minutes. Attorney Snigg spoke first and antagonized the Committee from the start. The Committee members heckled him continually because of his obvious misstatements, misrepresentations and exaggerations. He talked twenty-three minutes. Dr. Clark then was introduced. He read a few scientific facts which were used in attempts to show that animals were different from man. Attorney Snigg read some questions directed to Dr. Clark and Dr. Clark with difficulty read the answers. Then Dr. Clark concluded with a tirade against the Representatives, a eulogy of himself, and a brief lecture on "Sanitology as a Panacea."

They consumed forty-five minutes of time. While this was going on, it was obvious that they had killed their own bill and all we desired to do was to refute a few of their statements which were so malicious that we

felt they should be challenged. Representative Igoe said there was no need of that; then Dr. Neal said he would like to read the names of those prepared to speak. Mr. Igoe said there was no need of that and moved that the bill be "killed" by the Committee. The motion carried by a vote of 32 to 4. Mr. Bederman voted for his bill and Mr. O'Grady explained his vote by stating that he was against the bill, but liked to vote for the "under dog." The two other votes we feel were mistaken, because Mr. Igoe's motion was stated negatively in regard to the statement of the bill.

This report should not be concluded without mentioning the invaluable advice, cooperation and assistance of Dr. John R. Neal, one of the members of our Society, and the Chairman of the Legislative Committee of the Illinois State Medical Society, and of Dr. Grace Wightman, Chairman of the Committee on Public Health and Child Welfare of the Illinois Federation of Woman's Clubs.

A. C. IVEY,

Secretary, Illinois Society for Protection of Medical Research.

Correspondence

STATUS OF MEDICAL LEGISLATION AT SPRINGFIELD

A desperate effort is being made by the cultists to force their various bills through the Senate.

Sufficient pressure was brought to bear to the end that the Senate resolved itself into a Committee of the Whole last Tuesday morning to hear both sides of the argument. This procedure is very unusual and, as a rule, is only resorted to in bills of extreme importance.

The Naprapaths and Chiropractors both had speakers in favor of their respective measures. The Osteopaths trusted the destiny of their measures to Senator Lee who introduced the Osteopathic Bills. The Chiropractors had a lobby of more than two hundred in the gallery, who roundly applauded practically every statement the Chiropractor spokesman made, and the member of your Legislative Committee who spoke in opposition of the bills, was complimented by booing and hissing.

It is not the purpose of this bulletin to go into detail regarding the speeches made at that session, but it is imperative that each doctor receiving this bulletin immediately get in communication with the Senator from his district. The most efficacious contact is by a personal interview. But, if this is impossible, at least write or communicate by mail with your Senator, ask-

ing that he oppose the following bills now on third reading in the Senate:

Senate Bills 360, 361—The Osteopathic Bills.

Senate Bills 382, 383—Both Chiropractor Bills.

Senate Bills 489, 490, 491—All Naprapathic Bills.

It is the impression of your Legislative Committee that if a sufficient number of protests are received, the Bills will not even be called for passage, but in the event that the physicians do not take interest in the matter to the extent of at least registering their protest, in all probability, the Bills will be called for passage, and no one can tell what may happen on a roll call, and it would be a sad commentary to the excellent cooperation that the majority of the members of the Illinois State Medical Society have evidenced this year in the Legislature, to have these Bills pass the Senate when a little individual work on the part of each physician may prevent it.

The session is drawing to a close, although adjournment will not take place until probably June 20th. But, it is not too late for these pernicious bills to gain headway if the persistent efforts of the myriad of lobbyists for the cults continue their personal contact, not only here in Springfield, but back in each of the Senatorial districts.

This bulletin is necessarily short so that the problem, as above outlined, will be given the proper attention by each of our members. Over seven thousand of these bulletins are being sent to the physicians throughout Illinois and it will be interesting, in the event that there is a roll call, to see which districts failed in registering a protest at this very crucial time.

A final bulletin giving specific details regarding the very hectic session that has engaged the Society's attention this year will be issued immediately after the adjournment of the General Assembly.

However, it is not too early to thank the medical profession for its sincere cooperation in legislative matters this year. Every suggestion that your Legislative Committee has recommended has met with the fullest cooperation in practically every county in the State. The Chicago Medical Society, particularly, has done a great amount of work with a most telling effect, in that fifteen or twenty very pernicious bills in the House

have been permanently disposed of in a manner which is for the best interests of the people of the State.

Yours very truly,

J. R. Neal, M. D.,
Chairman Legislative Committee.

COMMUNISTIC PROPAGANDA WHERE IT TOUCHES THE PRACTICE OF MEDICINE

Chicago, Ill., May 14, 1931.

To the Editor: I have noted for a long time and read with a great interest your able editorials directed against the subtle communistic propaganda where it touches the practice of medicine.

This same propaganda is an activity which the organized reserves of the United States Army are combating wherever possible. At a recent meeting of the commanding officers of the various reserve units in the Sixth Corps Area I was appointed a committee of one to communicate with you in the hope that you as editor of the Illinois State Medical Journal would occasionally put in a good word for the organized medical reserves.

The Medical Reserve Corps at this time is only about 54% of the quota which has been determined upon as being adequate in the scheme for national defense. We are finding that young men, recent graduates of medicine who show an interest in the army are strongly influenced by various pacifists and discouraged from joining the reserve corps.

I believe that a boost from your editorial pen will do much to counteract this subversive propaganda and I trust that you will see fit to write an editorial some time in the near future advising recent graduates who are interested in military affairs to join the reserve corps, I am,

FRANK J. NOVAK, JR., M. D.

AN APOLOGY FROM DR. DUKE OF KANSAS CITY

Dr. W. W. Duke of Kansas City was scheduled to deliver the oration in Medicine at the annual meeting of the State Society held at East St. Louis in May but was unable to come on account of the serious illness of his mother, who has since passed away. Dr. Duke sends the following apology to the many members of the

Illinois State Medical Society for his absence at the meeting.

Kansas City, Mo., May 15, 1931.

Dear Dr. Camp:

I am writing to say that my mother died yesterday. I would be glad if you will give this information to the members of the Illinois State Medical Society who might have been surprised at my absence from the annual meeting of the society at East St. Louis.

W. W. DUKE, M.D.

ACUTE TRANSIENT EPIPHYSITIS OF HIP JOINT

Acute transient epiphysitis is given by O. L. Miller, Charlotte, N. C. (*Journal A. M. A.*, Feb. 21, 1931), as a common cause of hip complaint in children. It is usually provoked by mild trauma. It may be suspected in a child complaining of pain about the hip if he has diseased tonsils or has recently had an acute infectious disease. Eighty per cent. of his cases were associated with diseased tonsils. Carefully made roentgenograms will show small abscess formation and absorption about the epiphyseal line. The treatment consists of the removal of infectious foci, rest from weight bearing, and traction on the lame limb. Duration of the disease is from a few weeks to a few months, and if prompt treatment is instituted, children recover without any disturbing changes in the hip joint.

PHYSIOLOGIC MEANING OF COMMON CLINICAL SIGNS AND SYMPTOMS IN CARDIOVASCULAR DISEASE

Carl J. Wiggers, Cleveland (*Journal A. M. A.*, Feb. 21, 1931), asserts that every form of disease may be looked on as an experiment that nature performs on animals or man. The so-called symptoms of disease are nothing more than intensified or depressed reactions which, if not actually in operation, are at least potentially available in the normal organism. No pathologic process in disease is capable of evolving new types of functional reactions. Neither is it capable of exciting or depressing functions that cannot be similarly affected by artificial or natural means in normal organisms. The methods employed by nature in experiments are often cleverly concealed and hence not always fully understood. It is the task of experimental physiology and of experimental medicine to discover the methods chosen by nature and to duplicate the physiologic reactions in experimental animals, where they can be more thoroughly investigated. With such thoughts in mind he analyzes a few common signs and symptoms of cardiovascular disease (tachycardia, palpitation, vertigo, syncope, convulsions and related symptoms, fatigue, dyspnea, orthopnea, cyanosis, oliguria and edema and cardiac pain) in the light of experimental studies, with a view of giving them a clearer meaning or an added significance.

Original Articles

ON BEING OURSELVES*

WILLIAM D. CHAPMAN, M. D.
SILVIS, ILL.

I have the honor to conform to a custom which has seemed, in the past, to be most constructive; and to make a discussion of professional matters and relationships; and to make recommendation. Unfortunately the desirable is not always expedient. That is one of the reasons why such a discussion is undertaken in a spirit of almost total humility.

It seems difficult for medical practitioners to remember that good health is not the end and aim of living. That difficulty results from a commendable sincerity of purpose but it should not be allowed to distort our appreciation of an environment which is actual rather than ideal. To the professional mind the achievement of exact physiologic function may properly be an end in itself; but to the patient such achievement is a mere incident accompanying one of the several nuisances he has encountered in the living of his life. Practitioners who would build contentment and ease for their patients would do well to recollect that the making of hypochondriacs is of small assistance in the fulfillment of their several destinies. It seems probable that the building of character may well be the end and best aim of living. That depends upon the doing of useful work, and occupations still must be adapted to varying degrees of health.

That conception permits the opinion that our professional work is probably the most useful of the adjuncts of living but remains an adjunct, entirely. For our patients the aim of living is to be present at work on the day when work is to be done; when healthy they may care little for physiology. Their characters are built by their own efforts, not by ours. Destiny is guided by work and intelligence. That is reason why we should remain humble in the things that we think we know, while we build our own individual and organization characters. Introspection and Orientation are primary in seeing ourselves as others see us.

The medical profession finds itself set among

a people composed of honest men and frauds, professional people and charlatans, workers and imposters. We may characterize these people as endeavorers, bigots, fanatics, paranoiacs, self-seekers, Christians, atheists, demagogues, politicians and statesmen; all possessed of behaviorisms varying between the social and the anti-social.

When vanity prompts us to choose favorites among these groups we are taught humility by a realization that our own ranks are recruited from among them and that we are as the others; while we recognize that every factor is present as in the Roman civilization of the fifth century.

In such case professional integrity and dignified progress in practice rest upon two points, a courageous self-imposed discipline and a developed art of expression.

The developing of an art of expression presents two phases: the doing of work which speaks for itself and the spreading of useful information among those who will listen. The latter is a defense mechanism which has been made necessary by the current mode. Organized minorities have made use of propaganda and emotional appeal, in the furthering of unwise laws and practices. They have progressed to the point of doing damage to people who look to us for advice and of doing violence to the form of our government. Health matters carry great emotional appeal for all people; and so the defense of truth has been forced upon our profession as an additional burden and the weapon must be expression in the terms and manner of the day. To permit damage to our lay friends and violence to our state without making effort for their protection would be neither courageous nor good professional conduct.

The development of this art of expression serves to place us under even closer scrutiny, however, than was the scrutiny of other years. And that imposes upon us an ever greater need for scrupulous conduct of our own affairs, involving courageous self-discipline beyond the needs of other years.

Educative effort to the end that the opinions of the medical profession be listened to with the respect which is their due on scientific, legislative, sick care and public health matters, has been judiciously pushed and has met with a remarkable actual success in Illinois. We are

*President's Address at Eighty-first Annual Meeting Illinois State Medical Society, East St. Louis, May 5-7, 1931.

again reminded that organizations do have character just as individuals do, and, likewise, they build their own reputations.

The Illinois effort has considered it fundamental that the component society be a keystone in educative work, its members informed of action and progress; and the local society endowed with final jurisdiction in matters of local policy. The success is a tribute to the members who have kept informed and have carried the inert weight of members who did not. Demonstration of ability is quite adequate and now another phase has become increasingly clear.

A better-educated public assuredly demands a better-behaved profession. Laymen whose primary wish is to work and play while they live never can understand some of our peculiarly internal affairs. And there is no reason why they should be bothered. And so the organization voice should insist that they hear little from us that is mean or puzzling. Therein lies self-discipline. Unless we act wisely and with courage among ourselves and speak with one voice among the family of organizations, our own educative efforts may be expected to presently lead intelligent people to resent in us futilities which they do not understand.

Courageous discipline among professional men is the working partner of education in truth. Without it, all educative efforts will presently fail through having invited public attention to shortcomings that should be held to a minimum. Loss of faith in our profession would be calamity for our public because there is no adequate substitute. In adaptiveness, then, lies the art of being ourselves for this most rapidly moving era. Adaptiveness is the ability to recognize and conform to situations as they are. It is a proof of fitness. If we are fit we will employ adequate professional cohesiveness as one of our tenets of truth.

When one is misguided to make extravagant claims or to disparage earnest workers or to sell or loan a respected professional name for advertising purposes, our public is puzzled or exploited or both and harm accrues to both the profession and the public. When we have educated our public sufficiently, they will know their right to look to us for protection in these matters and they may be expected to impose a proper suffering upon the profession if it fails in that.

The representative of a large clinic who tells a professional committee that he thinks periodic physical examinations should always be made in large clinics because the general practitioner is incompetent to conduct such examinations, speaks with a provincial ignorance that is a bit astonishing, but he is within his right and he speaks with the courage of his convictions. When that man steps from the hall and hands prepared excerpts of his statement to the gentlemen of the press, so worded that they become advertising propaganda for the group which he represents, he has been guilty of unprofessional conduct and should be disciplined in the county of his residence. He has violated truth through narrowness of vision and he has harmed the newspaper reading public.

One who spends years building a respected professional name and then permits himself to be quoted in the press columns with a claim of diagnosis by mail by a staff of experts reading x-ray shadow graphs, has become lost to professional thought. Granted a paste and a broadcaster's license, he might develop into a successful business man of a sort. No man who harms our public to that extent should escape proper and complete discipline.

I cite instances which have occurred and I warn that enough repetitions will be fatal to professional usefulness.

I ask you to believe that no reason exists why they should be tolerated. I ask acceptance of the thought that if we ourselves permit continuance, our public and we will presently meet up with sorry days.

When a matter of standardization of hospitals has been permitted to interfere with the work of Illinois component societies to the point of confusion or ruination, I protest. Hospital-standardization is a phrase of the decade which has been over-advertised to the public in a manner not always professional. The result seems to be out-riding the prospectus.

Hospitals are not essentially surgical palaces; they are hotels for sick people and surgery may be one of the incidents of hospital living. Other matters of major import are also customarily conducted in these beds.

Only one professional organization exists in the United States which is sufficiently general to give it authority for attempting a general

rating of hospitals. That is the American Medical Association.

Surgeons are professional men first and they are craftsmen second. Any other conception will eventually be fatal to the well-being of surgical practice. If multiple classes of specialists attempted such ratings, hospitals would be greatly embarrassed. The American Medical Association should be encouraged in exercising its rightful jurisdiction, for the protection of our component societies.

Progress for the United States rests with the medical profession of this generation, possibly more than we can fully sense. Failure of this group would mean a probable failure of government, revolution, retrogression, rebuilding. If the medical profession were removed from present day living, the world would go back five hundred years, to the darkness of the sixteenth century. The attempt to build Communism in America with non-communist hands has resulted in much lobbying upon paternalistic proposals which would operate to overthrow our form of government. Matters of health carry emotional appeal to such extent that they have occupied large place in these activities.

The medical profession is the source of the world's information on health matters and statesmen should be patiently led to remember that neither lay groups nor official workers for the public health can change that. The public health still is the sum total of the private health.

Much confusion would be avoided if our members were generally taught that our profession speaks with one voice upon matters of public policy. All differences of opinion will be held within the profession whenever individual professional integrity shall have developed sufficiently. In the meantime I fear that laymen are a bit amazed at watching individual members of the American Medical Association contradict official resolutions of the American Medical Association before Assembly Committees; and continue to retain their organization affiliation. There must be difficulty for lay understanding that such could happen if everything were right within an organization that speaks truth. I repeat that the more we puzzle our people the greater harm have we done them. Harmfulness is far removed from the professional ideal.

Understand, please, that I do not scold. I have never earned that right. The comment is that I am convinced that we would do well not to blind ourselves. Seeing things as they are is the first need in constructive effort.

The maintenance of a correct proportion between the professional, craftsmanship, emotional and economic angles of our work is necessary. And just discipline toward that end constitutes the only measure which can prove us fit.

If we are not fit, we shall suffer; but we should do so with full recognition of the operations of cause and effect. For us, always, the test of fitness has lain in whether or not the lay mind found the professional mind worthy. Whenever it has been impossible to explain to laymen, then the profession has been discountenanced.

These considerations have especial significance for the present generation because of unprecedented increase in the rate of change in both science and economics—change at so bewildering a speed that we hear unthinking people apply the word “antiquated” to an ethical system as unchangeable as is the Golden Rule.

Allbutt's apt phrasing is illuminating and should be much studied: “Races and customs change as they become specialized but the heart of man remains the same.” Analysis supplies conviction of its truth and conclusion is presently forced that no single fundamental, in emotions or in ethics, has changed since the dawn of civilization.

Changes of economic need and thought necessitate agile adaptiveness, even to the remaking of the mode and the manner of practice or to leading to the necessity for building political understanding of the so-called “newer school of social thought;” but never do we find emotional or ethical change.

Of course we are confused; but the confusion lies entirely in our limited capacity to assimilate education; and our professional confusion seems far less than the confounding of the major operations of manufacture and commerce which has resulted from the same shift of setting. I suspect that no professional confusion exists which can not be rightly traced to an economic or emotional source.

Our continued usefulness rests in strict adherence to that proper balance between work phases. Such adherence calls for vision and courage and

self-denial; and always, the medical profession has displayed those traits to advantage when compared with collateral contemporaries.

Recognition of these needs presents difficulty, for no one likes to talk of it. The difficulty is in no way surprising, for men are prone to confusion between the real and the unreal. It has been truly said that, of the things which we sense, only the unreal are real while all of those things which men class as material exist by grace of fortunate temperature, only; that ice or stone or iron or all of the other substances fade, become unreal and pass beyond our senses when heated sufficiently. On the other hand, the unreal—the emotional and the ethical; the loves and the loyalties; the phases possessing no economic or material entities *do* build economic systems and do make materials and construct governments and do rule civilization since the beginning of time. If it is real to build materials into economic systems which can function in an ethical manner, then we must class the loves and the charities and the ethical behaviorisms among the most real of all. They represent the positive phases of building effort, of which material things are shaped.

Negative-phase emotions do not build; they destroy. When hatred and envy or jealousy and greed predominate no material thing can be safe.

So long, however, as organizations of men band themselves together in spirit of good emotion and then develop adequate arts of expression, just so long can material progress advance without interruption. These things apply to organizations and constitute for us a heritage from our fathers, to be guarded in trust for posterity.

For our own ease of living we would do well to know that economic forces from without build the setting in which we work and that never, until we speak as a unit, will we be able to exert maximum influence upon social foolishments which seem at a given moment to possess an economic use.

With such a voice, maintained upon orderly discipline, we would see marked fading of efforts at the practice of medicine by politicians, mathematicians, feminists, pacifists, communists, biologists, economists, manufacturers and insurance companies—dissatisfied with their own arithmetic.

Without such voice there seems little doubt but that individuality in medical practice will be presently overruled in America, not by popular consent but by misfeasance of organized minorities coupled with a lack of political stamina in government, and a scramble for temporary economic gain.

The people who will accomplish this change do not know that Physiology cannot be socialized because it is entirely individual and entirely relative. That circumstance may make them easier to forgive but it in no way lessens the harm of what they do. In Physiology we meet most clearly the dominance of the unreal over the presumed real. Doctors never treat pathology alone; they treat emotions plus pathology and with full realization that shock or fear or anger may stop digestion and assimilation, or may delay or prevent convalescence.

To happily continue in the art of being ourselves it is necessary that we remain complacent while partly-informed enthusiasts juggle with the lives of our friends and while the practitioners of fiat medicine make their moves for temporary political or other economic gain. Complacency, however, ceases to be a virtue when it becomes callow. To be true to ourselves we should maintain integrity commanding respect.

Social insurance, paternalism, fiat medicine, corporation practice, and some other evils can best be combated by fostering professional unity and the policing of inadequacies within our own ranks. Special society memberships properly are subsidiary to professional county, state, and national affiliations and should accept the fact without question, for in no other way can proper balance be held.

Every healthy organization carries a strong and silent undercurrent of force in the body politic, represented by the major and best portion of its membership, who go quietly about their work and speak only in emergency. If we are fit we may expect this force to assume control, temporarily, whenever special claimants shall have sufficiently abused privilege.

The age of over-specialization is passed. When we buy automobile tires at gasoline filling stations and automobiles from men who sell radios and we are shaved by insurance salesmen and we see lawyers doing a little real estate brokerage; we know that we have encountered a trend

and that not all of the sixty per cent. of recent medical graduates who have claimed specialties will continue the claim.

That is wholesome and is for the good of society in both an economic and a physiologic way. The general practitioner who has come back is an improvement and is cause for congratulation. The challenge that no man could assimilate and use the flood of new paraphernalia and new thoughts was too great a challenge to be ignored. Professional nature was put to a test no greater than by other seemingly insurmountable obstacles; a little time, some more hard roads, a change in distribution of tools, appliances and operators, and solution seems at hand. He again is recommending the services of specialists to his patients in his own discretion. The self-diagnosis which led patients to choose their own specialists is not the trend of today to the degree that it was ten years ago.

Lay dictation is a phase which we will continue to have with us, for the reason that medical practice is an adjunct of living in a layman's world. We should limit that dictation to cover only the setting and not the procedure of our work. That would require great effort at self-control.

Without adequate discipline among the profession, any plan of any layman will find some man with a professional degree ready to give whatever service the layman has prescribed in exchange for a living wage.

We need feel no chagrin in that situation. It is normal in an economic world. We could control it if our members valued the professional spirit in work above economic considerations at all times; otherwise we cannot. The corollary is that if our profession unanimously achieved that state of mind, we should probably be zealots entirely out of step with the working of the world and, so, looked upon with a disfavor that would seriously handicap our usefulness.

The tribulations of an ideal citizen in a practical world were well exemplified some nineteen hundred years ago. Lacking the ability to invoke the religious fervor with which history has enshrouded the life and the works of Chrst, organizations of men in the present year will accomplish greater good by adapting their actions to their settings. The ideal should serve as a guide but the action must conform to cus-

tom. Actions can be more or less immediately controlled while settings can be changed or built only by long-continued exercise of influence.

And so recognition of the ideal and work toward it while we speak the language of the day becomes our best field.

Efficiency of both individual work and organization influence will remain below the desirable until such time as the medical profession regains control of the policies pursued in the education of men for medical practice.

The professional men of every generation are obligated to deliver a preceptorship. That obligation is not erased if a man in his dotage endows education with much money and some strings. Money is a help in education. Restrictions of policy dictated by laymen cannot be of help to the professional mind. No such restrictions can relieve professional men of the entailed duty of acting as preceptors for those who are to follow.

Great endowments plus restrictions of policy have given medical education a didactic turn which imposes upon us a duty of reinstating the practical phase if we would be ourselves to full advantage. For this purpose close contact with educators seems to be the indication of the moment.

Best usefulness lies in accurate differentiation between the desirable and the feasible; the ideal and the practical. The keener our realizations, the fewer will be our disappointments.

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THE SYMPTOMS OF ACUTE PERFORATION OF PEPTIC ULCER*

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Acute perforation of a gastric or duodenal ulcer is one of the abdominal catastrophes in which the only chance to save the patient's life lies in operation within the first few hours. In the majority of cases, after the first twelve hours any treatment is associated with a mortality that increases with each additional hour of delay.

In order to make an accurate early diagnosis one should be familiar with all the symptoms of acute perforation which in some cases may be quite varied. This paper consists of a study of

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the symptoms in twenty-eight cases of acute perforation covering a period of eleven years. An effort is made to profit by the diagnostic errors committed.

Of these 28 cases, 26 were operated on and lived, one died following operation, and one, who was seen in a moribund condition, expired without the aid of surgery.

The common description of the usual symptoms is that the patient has a history of epigastric distress, usually relieved by food, which became worse a few days before the perforation. The onset of the perforation is sudden, characterized by severe epigastric pain, shock and abdominal rigidity. In hospitals where there is sufficient correlation between the x-ray department and the operating room, fluoroscopic examination will demonstrate air in the free peritoneal cavity.

When these symptoms are present, and in this order, there is very little excuse for failing to diagnose a case soon after it is seen. However, in these 28 cases, only 17 were of this type; five were diagnosed acute appendicitis, three, intestinal obstruction, two were correctly diagnosed but gallbladder colic was not entirely ruled out, and one case was not diagnosed until at autopsy. This patient came into the hospital in a dying condition after four days' illness and an accurate history was not obtained at the time. Thus in the cases operated on 19 were diagnosed correctly and eight incorrectly before operation, but the important fact is that in all eight the real trouble was discovered and corrected while the abdomen was open, and all eight recovered. A definite percentage of diagnostic errors is found, because this condition demands immediate operation and does not permit detailed study. It must be treated at once on the basis of the operator's knowledge gained in the management of similar cases.

Age is of very little importance in arriving at a diagnosis as the youngest patient was 19 and the oldest three were 72, 76 and 77 years, respectively. Only six were females. The fluoroscope was not used in the examination of any case.

In the 17 cases with classical symptoms, the onset was sudden, with acute pain in the epigastrium, very agonizing in character. A few of the patients would roll about the floor on account

of pain, but most of them would lie flat on the back, their hands protecting the abdomen, and afraid to move for fear of producing more pain. Several of these patients also complained of a severe aching pain in the back both before and after the perforation. These were all duodenal ulcer perforations. In a few the pain was paroxysmal in type and there were short intervals when no pain was present. Pain was often not relieved by one-half grain of morphine.

Vomiting was present in all cases, varying greatly as to frequency and amount. No blood was recorded as being found in the vomitus and none gave a history of previous hemorrhage.

Shock was present in varying degree in all patients. The pulse was frequently very slow and irregular in the beginning, especially in elderly people, but usually returned to normal by the time the patient reached the hospital. Abdominal rigidity was pronounced in all the classical cases and, in my opinion, was the most reliable sign obtained. The rigidity was usually most noticeable on the right side, but the whole abdominal wall would be tense and could not be relaxed. In an abdomen that is quite generally rigid within three or four hours after the onset of an acute colic, I believe exploration for perforated ulcer is advisable, even in the absence of a proper history.

The leucocyte count, when made, averaged 16,000, but varied in proportion to the shock present and the time that had elapsed between the perforation and the blood count. Two cases were below 6,000 and one was 32,400. In no case was a blood count of any aid in diagnosis.

The history of previous ulcer symptoms could not be obtained with any accuracy from either the patient or his relatives before operation except in one case. In this case a typical ulcer history was given, with the interesting statement that his symptoms had been much worse in spite of alkalies and a soft diet for three days preceding perforation. About a week after operation, when the patients were convalescing from operation, all were able to relate a history that made a diagnosis of ulcer quite easy, but this was too late to be of any aid in the pre-operative diagnosis. I believe that this is a fact worthy of emphasis.

Second in frequency were five cases diagnosed as appendicitis. They came into the hospital

usually at night when the judgment of all concerned in making a diagnosis was probably at a low ebb, but nevertheless their symptoms were quite different from the type just mentioned. There was an acute onset, but with pain only moderately severe and followed by vomiting. The pain was usually in the right lower quadrant of the abdomen and the tenderness was over McBurney's point. The fever and blood count could be easily reconciled with that of an appendicitis, and the right rectus was rigid. On the basis of these findings a diagnosis of acute appendicitis was made in all five cases. At operation there was a certain amount of free fluid present, the appendix was red and inflamed, but quite obviously from without, and there was a total absence of the usual findings in an acutely inflamed appendix of the primary type. Furthermore, the fluid was of a sticky character that could be readily detected when the fingers were separated after exploring the abdomen. The absence of appendiceal findings and the presence of this type of exudate called for further exploration in every case. In the five the perforation was found and repaired. One case is reported herewith as an example of what may be found.

Mr. A. S., aged 24 years, had been having symptoms of hyperacidity for several months. An x-ray examination by my associate revealed a very doubtful filling defect in the duodenum, and on the basis of this a duodenal ulcer was diagnosed. He was treated as an ambulatory case with alkalies, soft food and frequent feedings. The symptoms improved, and then disappeared. He had been symptom-free for six months, when he came to the office one morning stating that one hour before he had had an acute pain followed by vomiting. On examination temperature was 99, white blood count 14,000. His right rectus was slightly tense and he was quite tender over McBurney's point but no where else. A diagnosis of acute appendicitis was made and it was thought that he might have had a previous attack which accounted for the symptoms of ulcer. A high right rectus incision was made three hours after the onset of symptoms. A large amount of fluid was found and a normal appendix removed. Exploration then revealed a small perforated duodenal ulcer draining a continuous stream of fluid down toward the lower abdomen. The ulcer was excised in the longitudinal axis of the duodenum and the incision closed transversely. The abdomen was closed without drainage. The patient made a normal recovery. He has reported regularly twice a year since operation and has had no further symptoms.

The other four cases presented histories not suspicious of ulcer, but at operation the ulcer was discovered on exploration when the appendix

was found not to have sufficient pathology to produce the redness and exudate present.

Two cases were almost identical, in that both had presented symptoms in the past that had been diagnosed as gall-bladder infection and each one thought that he was having a gallstone colic. The pain was very severe but was paroxysmal in type and seemed to be a typical colic. However, when the pain was partially relieved by morphine a definite rigidity remained, and while the diagnosis of gallstones seemed quite possible, both patients were operated on at once on the assumption that the persistent rigidity made the diagnosis of perforated ulcer too probable to permit of any delay.

The three cases that resembled acute intestinal obstruction are considered worthy of an individual report, as their symptoms were not of the usual type, and they served to illustrate the necessity for constant alertness in diagnosis, for with proper consideration all three should have been correctly diagnosed before operation.

C. N., a farmer, aged 77 years, had been in good health and was working alone in the field a half mile from home when he was seized with a severe abdominal pain. He started for the house but the pain became so severe on the way that he had to sit down and wait for it to subside. He was seen by a doctor who found him in moderate pain and some shock. He was given a hypodermic of one-fourth grain of morphine and 1/150 of atrophine, and brought to the hospital.

When I saw him, about three hours after the attack and one and one-half hours after the hypodermic, he seemed a little stupid as from the hypodermic but could talk well; he had no pain and absolutely no rigidity. Rectal examination was negative. White blood count 9,050, temperature 97, pulse 68 and urine normal. The lower abdomen felt unduly full, was distended and it was thought that a mass could be vaguely outlined. Considering the fact that his doctor had found him in severe pain and that the abdominal distention had increased, a tentative diagnosis of acute intestinal obstruction was made and the abdomen opened through a lower midline incision. Aside from a partly filled bladder nothing unusual was found excepting a moderate amount of fluid. When this was examined it was noted to be very flocculent and sticky, and for this reason alone, as the intestines were not red, the incision was enlarged upward and the stomach explored. A perforated duodenal ulcer was found which was excised and closed. The wound was closed without drainage. The patient left the hospital in fourteen days and has not been heard from since.

W. E. S., male, aged 72 years, had not been in good health for years, but without any definite complaint. He was taken sick in the late afternoon with cramp-like pains in the abdomen. It could not be determined

whether he vomited or not. When seen five hours afterward, he was slightly distended, had been vomiting a great deal, and had intermittent colicky pains with pronounced intestinal peristalsis. A diagnosis of probable intestinal obstruction was made and the abdomen opened for exploration. No pathology was found except a definite peritonitis and the presence of a large amount of free tenacious fluid. A diagnosis of perforated ulcer was made and a search for it begun.

The incision was enlarged upward and the stomach and duodenum freely exposed but no ulcer was in evidence. The entire thickness of the stomach was palpated with no results. Finally as I was about to give up the search, it was noticed that fluid was coming out of the foramen of Winslow, which indicated that the perforation had occurred into the lesser peritoneal cavity. As the ulcer could not be palpated, the posterior wall was explored through an incision in the transverse mesocolon in the same way as in preparing for a posterior gastroenterostomy. In this way the ulcer was located and a large perforation found. Since the exposure was not good, the perforation was merely closed with a purse-string of catgut and the abdomen closed without drainage.

He had a stormy convalescence, the wound became infected and he required from three to four months to effect a recovery, but he is still living and apparently has no more trouble with the ulcer.

Mrs. J. W., aged 76 years, who had been in perfect health previously, was taken sick with colicky pains and vomiting. An opiate was given for relief, but the next day the pains returned. When first seen by me, sixty hours after the onset of symptoms, her abdomen was distended, there was no fever, the pain was colicky in type and she had not had a bowel movement in three days, in spite of repeated enemas. Borborygmus was present and a diagnosis of acute intestinal obstruction of three days' standing was made. Operation was advised, but a bad prognosis was given.

Operation, under local anesthesia, revealed an inflamed peritoneum with a large amount of free fluid. No obstruction could be demonstrated but some fresh adhesions were present in the upper jejunum, which seemed insufficient to account for her trouble. Finally the character of the fluid led to an examination of the stomach and a perforated gastric ulcer was found on the anterior surface near the lesser curvature. This was closed by a catgut pursestring and the abdomen closed with one cigarette drain to the pelvis. The drain was removed in forty-eight hours, the wound healed promptly, and she is still in good condition two years after operation.

In conclusion, I believe it may be safely stated that in a small percentage of cases the diagnosis of the acute perforations of peptic ulcer may be difficult and in some cases impossible. Also, that when an abdomen has been opened for the relief of some acute pathology and the pathology found seems insufficient to account for the symp-

toms present, the operation should not be concluded until further exploration has been made to ascertain the possibility of a perforated peptic ulcer.

THE TREATMENT OF ACUTE GONORRHEAL ARTHRITIS

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The management of a series of 31 cases of acute gonorrheal arthritis, showing the results obtained by combining different therapeutic measures is reported.

On all cases presented, positive gonococcal smears were obtained either from the urethra, cervix or prostatic secretion following massage.

Although a slightly larger series was studied clinically, the cases reported were those coming under observation within one month after onset of joint pathology so as to be classed as acute in character, fifty per cent. of the cases entering the hospital within one week after onset of arthritis.

The findings varied in all degrees from only mild swelling and pain to extensive swelling, excruciating pain with complete immobility. Roentgenologically, none of the cases showed any evidence of joint destruction.

Twenty-four males and 7 females were studied in this group. Multiple joint involvement was present in 17 cases. Of the joints involved, there was marked predilection for the knees, ankles, and wrists in the order named. The temporomandibular joint was involved in three cases, and the sterno-clavicular, shoulder, and elbow were involved in one case.

Treatment was carried out with three therapeutic factors in mind, namely, relief from pain, diminution of the swelling, and the return of function. The hospital stay in these cases varied from 3 to 35 days, with an average hospitalization of 11 days. From a clinical standpoint half were classified as much improved on discharge and the remainder obtained fair improvement. Our methods of therapy consisted of systemic, focal, and local measures.

On admission all cases were placed on moniodocinchophen capsules, taking two three times daily. In some cases there was marked diminution of pain following internal medication, but in the great majority other therapeutic measures were required. However, in just a few instances was there need for other sedatives and hypnotics than the drug used. In some patients the drug was stopped temporarily with return of pain until further administered. In studying this group of cases, other oral medication was not given, so that evaluation of the moniodocinchophen could be made. One case developed a toxic erythema on the fourth day that receded quickly after the drug was stopped. No other toxic manifestations or gastric distress were noted.

In 21 cases, intravenous vaccine was used in dosages of 5 to 10 minims. Several of the standard preparations of mixed gonococcal vaccine were used. The vaccines were only administered when temperature was under 100 degrees F. and in half of the instances was repeated in five to seven days. The immediate response following this therapy in most cases was good, but recurrence of pain following the temperature reaction was commonly recorded.

Immobilization of the involved joints was done in 7 cases. In all of these, the patients were seen by an attending orthopedic surgeon and casts applied on their advisement. Prompt relief from pain was noted after immobilization and this combined with the analgesic effect of the moniodocinchophen gave marked relief of subjective symptoms.

In five of the cases not responding to conservative management outlined previously, bilateral vasotomy with injections of 10 to 20 c.c.'s of a five per cent. solution of collargol into the seminal vesicles was done. Vasotomy was attempted in another case but was unsuccessful because of occlusion of vas on one side. In three of these cases there was prompt relief of pain within twenty-four hours, during which period other medication had been stopped. Two of the cases had not responded favorably to foreign protein therapy or immobilization, but made marked improvement after vasotomy. In one instance there was marked relief of symptoms for several days,

followed by a remission. Routine prostatic and vesical massage following vasotomy was carried out with betterment of results. The value of vasotomy as obtained from this very small series was striking and its indication in acute G.C. arthritis where relief from conservative management fails is evident.

Intravenous injections of sodium iodide were carried out in two cases in conjunction with the other measures. In two instances aspiration of the joint was done for diagnostic purposes.

Several cases are given:

1161-624. Male, aged 23 years. Entered with markedly swollen, tender left knee; pain in L. temporo-mandibular joint; and pain in R. wrist on motion. Temperature 101.2 on entrance. Positive urethral smear G. C. Placed on moniodocinchophen, and knee immobilized with cast. Vaccine given soon after admission. Temperature, mandibular and wrist pains receded in few days. Cast removed after two weeks with considerable pain still remaining but little swelling. Vasotomy done after which the knee responded well. Local treatment consisted of prostatic massage and anterior injections of protargol during presence of urethral discharge.

1171-298. Male, aged 31 years. Entered with moderate involvement both knees; mild swelling and moderate limitation of motion. Received moniodocinchophen for four days. G. C. vaccine on admission, with little improvement. Vasotomy done after which pain on movement cleared.

1191-334. Male, aged 24 years. Entered with slight swelling of right ankle. Left foot and ankle moderately inflamed and tender. Placed on moniodocinchophen for five days and received vaccine on admission, after which pain and swelling disappeared.

1189-348. Male, aged 23 years. Entered with painful right knee and swelling and tenderness of the left knee. Temperature 104 on admission. Received moniodocinchophen for eight days and improved nicely without further measures.

1173-024. Female, aged 38 years. Entered with swollen, tender, hyperemic right knee of four days' duration. Placed on moniodocinchophen, received G. C. vaccine once, and knee immobilized in cast. Improved rapidly. Cast removed after two weeks and patient able to walk with aid of cane.

Case. Male, aged 20 years. Entered with painful, swollen left epididymis of one day's duration. Temperature 103. Placed on moniodocinchophen, ice packs and vaccine. Rapid recovery. Returned to work third day, complete resolution in seven days.

Case. Male, aged 27 years. Entered with painful, swollen right epididymis of ten days' duration. Had been taking pills and applying ointment prescribed by a doctor without relief. Placed on moniodocinchophen, elevation, hot applications and vaccine. Relief of pain

in 24 hours, returned to work in 5 days and complete resolution in 11 days.

Summarizing:

1. Monoiodocinchophen is a valuable adjuvant in the treatment of G.C. arthritis. In some instances its usage alone afforded good relief.

2. Vaccines are beneficial in diminution of pain, but there is a tendency toward recurrence of symptoms after the febrile reaction has receded.

3. Immobilization with casts affords relief from pain, and placing the joint at rest promotes resolution of the inflammatory process.

4. Bilateral vasotomy with injection of five per cent. collargol will give prompt relief from pain in an appreciable group of cases and should be tried where more conservative treatment has been unsatisfactory.

Treatment of acute G.C. arthritis using the above measures along conjunctive lines produced good results in a series of 31 cases.

5. Brilliant results have been noted from monoiodocinchophen in cases of epididymitis. Prompt relief of pain and an early resolution were outstanding factors.

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SARCOMA OF THE KIDNEY—REPORT OF TWO CASES IN ADULTS*

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True sarcomata of the kidney in adults are rarities in comparison with their frequency in childhood, and in reviewing the literature one notes a decreasing number of cases reported as the years progress. This actual decrease is not because the host is overcoming this type of malignancy, but due to the fact of more accurate pathological studies of kidney tumors. In addition, post-mortem studies have served to prove that many cases diagnosed as sarcoma of the kidney, have been retroperitoneal tumors which had invaded the kidney substance.

In the earlier literature there were more cases of sarcoma reported than hypernephroma, because of the confusion of classification of kidney tumors, so that nearly all of the material relating to these tumors is of little or no value. In many instances the diagnosis was made only on the gross findings at exploratory operations or on the studies of a few microscopic sections. Also diagnoses were made on pieces of tissue brought out in the eye of the catheter after cystoscopic examination and no further attempts made to clear up the diagnosis.

In addition diagnoses were made on the assumption that if both kidneys were involved that the tumor was a sarcoma, because of this frequent peculiarity in children, which, however, is not true in adults. This assumption is shown by a case which Murphy¹ reported. In operating on a tumor of the right kidney, he said, "When I operate, I shall examine the left kidney first in order to determine the presence of metastases or a concomitant neoplasm; and if when examining the tumor on the right side, I shall conclude that it is a small round cell sarcoma, but not a hypernephroma I shall not perform nephrectomy, for statistics have shown that operation does not benefit this condition and that patients live just as long without the small round cell sarcoma being disturbed." From the above one can readily realize that a great number of cases would be diagnosed sarcoma instead of hypernephroma.

To quote from a recent review of the subject²

*Read before the Chicago Urological Society, November 26, 1929.

"it is remarkable that, although the components of renal tumors are so varied in cellular characteristics, although there are so many conflicting opinions regarding the classification of such tumors from the standpoint of histogenesis, pure connective tissue tumors of the sarcomatous type should be encountered so seldom. Fortunately the differentiation of sarcoma, carcinoma and hy-

youngest at 24, the oldest at 68 years; the rest being 37 years or over. Hunt and Hager³ state that contrary to general belief, their statistics do not bear out the assumption that sarcomata occur chiefly in young adults. The average age was 47 years. Two cases occurred in the third decade, two in the fourth, two in the fifth and two in the sixth.

A general statement regarding these tumors are that they are found in early childhood and adult life (i. e., after 35 years), but seldom in the intermediary period. Of the two cases reported here one was 24 years of age, the other 42 years.

Studies as to sex incidence have shown a preponderance of cases in males. No racial factor has been noted.

Etiology. As to the etiology of these cases there have been a few reported in which severe injuries to the back were thought to be an exciting factor, and in one of the reported cases there was a large renal calculus. However, as with other malignant renal tumors, except those of the renal pelvis, no definite etiological factor has been found.

Pathology. To the present day many pathologists are at variance in the diagnosis and classification of these tumors. Some are very lenient in their diagnoses of sarcoma, while others including Ewing are conservative.

Ewing¹⁰ states that adeno-angiosarcoma derived from Wolffian remnants and lipomyosarcoma remain the only well-defined varieties of renal sarcoma which have been fully divorced from a probably epithelial origin.

The accepted types of sarcomata of the kidney are the spindle cell, round cell, fibro-sarcoma and angio-sarcoma or perithelioma. In some of the reported cases as in one reported here the tumors have been made up of units with a central blood vessel giving the impression of an origin of the tumor from the endothelial lining of the blood vessels or from the perithelial space about the vessel.

As a general rule the sarcomata are soft, nodular and very vascular. They have a tendency for widespread invasion so as to at times almost completely replace the kidney substance. In the round cell type the tumor proper consists of large number of small round cells with here and there numerous lacunae enclosing blood which in places penetrates the cellular masses. In the



Fig. 1. Pyelogram of left kidney, showing bizarre deformity of pelvis with ureter displaced over spinal column (Case I).

perinephroma is as yet largely academic. With the advent of newer forms of treatment, however, it will become necessary to attempt differentiation of tissue characteristics."

Incidence. From the above one can readily realize that earlier statistics as to the incidence of sarcomas among other malignant kidney tumors are of little value. Recently, however, Hunt and Hager³ reported 10 sarcomas in a total of 271 cases of malignant kidney tumors seen at the Mayo clinic. Albaran and Imbert⁴ reported 21% of 380 cases prior to 1901 as sarcoma. Lubarsch⁵ reported 20 sarcomas in 97,498 autopsies and the Pathological Institute of the University of Berlin reported 13 sarcomas in 30,820 autopsies.

As to age incidence in a collection of ten cases Kretschmer and Randolph⁶ found the

spindle cell type the spindle cells are arranged in bundles.

The tumors in adults are essentially different from the embryomata or Wilms tumor occurring in infants, for the latter are mixed tumors arising from misplaced embryonic tissue and have a curious tendency to be bilateral.

The point of origin of these tumors is generally conceded to be from the capsule of the kidney; however, origin from the cortex or region of the hilus is possible.

Metastases are not as frequent by way of the blood stream as in hypernephromata, but have more of a tendency to spread by invasion of the kidney and later to neighboring organs such as liver, spleen and intestine. Bone metastases have not been reported.

In practically all of the cases reported the tumors have been large and of very rapid growth. In sarcoma we may have a very large tumor with no metastases, whereas in hypernephroma a small tumor may be present with diffuse metastases.

Symptoms. There are no pathognomonic symptoms of sarcoma of the kidney, in general they being those of any malignant kidney tumor with some exceptions. As most of these tumors arise from the capsule of the kidney, urinary symptoms at first are usually absent or not very marked and there is no pain until the tumor has attained a great size. When the tumor begins to invade the kidney tissue then urinary symptoms appear with hematuria being most pronounced. In many instances the principal feature is the presence of a palpable tumor, in fact this may be the only sign for a good while.

In many of the reported cases hematuria was entirely absent and in these we can expect that they arose from the capsule of the kidney with late invasion of the kidney.

In a total of 11 cases Kretschmer and Randolph⁶ were able to find mention of hematuria in only 3.

In order of frequency the symptoms most often are tumor, pain and hematuria. Loss of weight in these patients is generally rapid and other constitutional signs of malignancy are present, such as a secondary anemia.

In one of the cases reported here the patient ran a temperature ranging from 99 to 101 degrees. This despite the fact that there were no evidences of kidney infection as shown by cystoscopic examination. Creevy⁷ recently empha-

sized the point that in cases of obscure fever malignant tumor of the kidney should be considered. He states that the true nature of this fever will come eventually from the work of the investigation of tumor metabolism. Israel in 1896 first emphasized the presence of fever in some of his cases and advanced three theories (a) infection in the form of a pyelonephritis or pyelitis, (b) absorption of necrobiotic material from the tumor and (c) formation of specific pyogenic substances in the tumor.

Thomas⁸ recently reported a case of sarcoma of the kidney having a temperature ranging from 98 to 101 degrees.

In Kretschmer and Randolph's case varicocele and hemorrhoids were the most troublesome symptoms. The varicocele being a "symptomatic" one indicating possible kidney tumor.

Diagnosis. One can readily realize that a diagnosis of sarcoma of the kidney in contrast to the other kidney tumors is practically impossible. However, in a given case with a large tumor mass and a few or no urinary symptoms with no evidence of metastases, sarcoma should be seriously considered.

Pyelographic studies have usually produced bizarre pictures, and at times it has been difficult to distinguish between renal and extra-renal tumors due to marked displacement and deformity of the kidney and ureter. This in part may be due to the fact that the tumors often originate extrarenally and involve the kidney by direct extension. In one of the cases here reported the pyelogram was suggestive of polycystic disease. The pyelograms have not produced the spider-like deformity of hypernephromata.

From a diagnostic standpoint the tumor most difficult to distinguish from a sarcoma is a retroperitoneal tumor. However, in some cases in which the kidney tumor is not bound down a roentgenogram with a ureteral catheter in situ and pressure on the kidney will show displacement of the ureter if the tumor is one of the kidney.

Prognosis. Hunt and Hager³ state that from the standpoint of cure following nephrectomy, sarcomas offer the poorest prognosis; apparently due to the fact that the tumors grow rapidly and that involvement of the adjacent structures occurs early. It is not possible to evaluate the results of x-ray therapy, yet it seems advisable to institute some form of such treatment after op-

eration. Many of the earlier surgeons upon opening the abdomen and making a diagnosis of sarcoma of the kidney would immediately close the abdomen feeling that these patients live just as long without nephrectomy.

Treatment. As yet the treatment of choice is nephrectomy followed by x-ray therapy. In many of the earlier cases reported Coley's serum was used with no results. In one of the cases here reported the tumor was well localized in the kidney and nephrectomy was performed, there were no evidences of metastases.

In the Hunt and Hager³ report of seven patients on whom nephrectomy was performed, two are living, one of them 2 years and seven months after operation, the other is living after 3 years. Both of the living patients had x-ray treatment following nephrectomy. Of the dead, one lived 5 years and died of recurring sarcoma; two died within one month after operation and two, both of whom had x-ray treatment, within six and ten months respectively. At operation all of the tumors were found to be very large.

Richards⁹ in 1905 stated that if one could draw any conclusions from so few cases of sarcoma of the kidney, it would be that the course of sarcoma is a rapid one and since invasion takes place locally as well as by the usual channels, that it is not suited for operation.

As stated before, however, nephrectomy followed by x-ray therapy is the treatment par excellence, particularly now when diagnoses of kidney tumor are being made earlier, and at a time when good can be done.

CASE REPORTS

Case 1. W. C. K., white, married, aged 42 years, was first seen on January 21, 1929, at which time he complained of having an attack of momentary loss of consciousness in the morning. Prior to this attack he had noted marked palpitation of his heart along with general weakness. In addition, for the past year he had been losing strength and had frequent attacks of pain in the left lumbar region which occasionally radiated slowly to the left lower quadrant. About 1 year previous to this attack he had consulted a physician because of blood in his urine. He was told he had kidney disease and was given some medicine to take without any further investigation of his hematuria. This is another too frequent instance of belittling the presence of a hematuria, despite much preaching by urologists. Following this primary attack of hematuria he had not noted any more urinary disturbances. He was able to continue with his work until the date of his attack of

unconsciousness. During the past year he had been noting a gradual loss of weight.

His family and past history were essentially negative. Physical examination revealed no noteworthy findings about the head and neck. At the bases of both lungs posteriorly there were some moist rales. His heart was slightly enlarged in its transverse diameter and numerous extra-systoles were heard at the apex. His temperature was 99 and blood pressure 90/60. Abdominal examination revealed a round, firm, irregular, respiratory mobile tumor mass occupying the left lower abdominal quadrant. It was the size of a large grapefruit. It was non-tender and did not cause the patient any discomfort. There was distinct bulging in the left flank. The right kidney was not palpable nor was the liver.

There was no varicocele present, but connected with lower portion of the left vas there was a firm nodule with the diameter of a ten cent piece. Patient stated he had first noticed this some eight months ago, and thought it was getting larger. He gave no history of injury to the scrotum.

There was no inguinal adenopathy.

Cystoscopic examination revealed no noteworthy bladder changes. The right ureter was characterized unobstructed and clear urine obtained. About 8 cm. up the left ureter definite obstruction was met with and slightly blood tinged urine was obtained. Indigo-carmin injected intravenously appeared on both sides in 4 minutes in good concentration; a left sided pyelogram was made, with 11 c. c. of 12½% sodium iodid solution.

Laboratory Findings. Hb 75%, red blood count 4,260,000, whiteblood count 11,500. Urine from the right kidney negative with sterile cultures. Left kidney showed large number of red cells, no pus cells and sterile cultures. Blood Wassermann was negative. Blood sugar 84, N. P. N. 41 mgs.; Urea N. 17 mgs.; Creatinine 1.4.

Left Pyelogram (Figure 1). Showed a large, dilated and distorted renal pelvis with a bizarre picture. The left ureter was over the spine, evidently crowded over by a tremendously enlarged kidney. The lower ⅓ of the ureter was sharply kinked thus explaining the obstruction to the catheter.

Because of the bizarre picture, polycystic kidney was thought of and later a right pyelogram was made; this, however, aside from a slight distortion of the middle calyx was normal.

X-ray plates of the lungs were negative for any metastases.

The final diagnosis was malignant kidney tumor (left), and chronic myocarditis. His attack of unconsciousness was explained on the basis of a cerebral anemia; however, the possibility of a metastatic nodule was thought of.

The kidney tumor was thought to be inoperable; however, the small scrotal tumor was removed. This was intimately fused with the vas and separate from the epididymis or testis. Microscopic report on this tumor mass was small round cell sarcoma.

During patient's stay in the hospital his temperature

ranged from 99 to 101 degrees, and he developed a right femoral thrombophlebitis.

X-ray therapy was advised but the patient wanted to go home, and place himself under the care of a Christian Scientist. He grew gradually weaker and succumbed on May 26, 1929. In the interval the patient was remarkably free from pain or any other disturbances.

A partial post-mortem limited to the abdomen was made and showed the following:

External Examination. There are large areas of discoloration over the left flank and back and also over the right hip. In the left flank the skin appears almost gangrenous.

When the peritoneum was entered there was disclosed a massive growth in the left flank. By palpation it is outlined as extending to the spleen. Inferiorly it extends below the iliac crest. It extends to the middle and also obliquely upward and to the right for a short distance. The descending colon passes over this tumor mass and is firmly adherent to its inferior wall. The tumor is, likewise, adherent laterally and posteriorly to the parietal peritoneum. The liver cannot be seen but when palpated contains numerous nodules which are quite firm. No further attempt is made to examine the organs in situ due to the limitation of the incision. The tumor mass, the right kidney, the spleen and the descending colon and left testicle were removed.

When examined outside of the body the tumor mass is lobulated, for the greater part encapsulated except laterally and also posteriorly where the surface is ragged and granular. The tumor is oval in shape, the size of a small water melon, measures 25x15x9 cm. In the capsule can be seen a number of tortuous veins. When this mass is sectioned it is seen to consist of a lobulated tumor the lobules separated by dense white firm fibrous tissue bands. The tumor tissue for the greater part is moderately soft, greyish white and appears very cellular. At the upper portion it is extremely friable, appears degenerated in areas, the color being brownish, probably due to fixation. At the periphery there are present two cystic spaces containing some granular friable material. At its medial portion there is a cavity which corresponds in portion and appearance to a markedly distorted pelvis and is lined by greyish white smooth membrane. Upon probing it is found to be continuous with the left ureter which is thick walled but not dilated. In areas, in the periphery, sectioning discloses thin zones of reddish brown tissue which appears grossly to be compressed renal parenchyma; but this is the only evidence of remaining renal tissue.

Examination of the vessels discloses dilatation of both renal veins and of 8 cm. of inferior vena cava removed with the specimen; and when the vessels are opened their lumina are filled with the same greyish white tumor tissue previously described. Here, it has a rather stringy, friable consistency. In the right renal vein the tumor tissue extends to the hilus of the kidney but is not found in any of the intrarenal branches.

The right kidney is enlarged measuring 13x6x3.5 cm. Its surface is smooth. The capsule strips with ease.

Upon section although fixed there is clouding of the parenchyma. Grossly, no tumor tissue can be found in this organ. The pelvis shows no abnormalities.

A small portion of liver was removed. Although the capsule is smooth there are found studding the tissue numerous small yellow white nodules and upon section similar seeding of the organ is found, the larger nodules being cystic and multilocular. The liver tissue, itself, is greyish brown and cloudy.

The spleen measures 13x6x2.5 cm. The capsule is thin but wrinkled. Upon section the organ is brownish in color, rather compact and firm. The Malpighian bodies are easily discernible. Grossly, no tumor tissue is found in either the splenic vein or in the organ, itself.

Examination of the left testicle discloses a small mass in the region of the tail of the epididymis this mass being rather well circumscribed, greyish white in color and soft in consistency. The testicle, itself, is light brown and appears quite normal. The vas deferens is thickened and apparently along the cord there are present similar deposits of greyish white tumor tissue.

Microscopic Examination

Kidneys: Sections of the kidneys show a new formation of cells most of which are somewhat elongated or spindle shaped but which vary somewhat in size, shape and staining quality and which show very many mitotic figures. These cells are arranged around the smaller blood vessels. The blood vessels themselves are lined by tumor cells. These groups of cells with a centrally located vessel form units which infiltrate the kidney tissue. In some places these units are apparently fused by confluence but in a few fields in these regions the individual units are still recognizable as such. The kidney stroma shows signs of compression and a moderate degree of a parenchymatous degeneration.

Epididymis: Sections of the epididymis do not show the presence of the tumor.

Liver: Throughout the liver similar tumor cells as seen in the kidneys are demonstrable. Here, too, the tumor consists of one unit: i. e., the centrally located blood vessel and the tumor cells in the periphery.

Spleen: The sinuses are markedly hyperemic and offer a moderate amount of connective tissue stroma.

Lymph node: The lymph node shows similar tumor cells and units as described before.

Large Intestine: There are some portions of the large intestine in the sections which show the tumor cells in the submucosa, muscular coats and peritoneal surface.

Case 2. For a report of the second case I am indebted to Dr. Saphir the pathologist at the Michael Reese Hospital.

The patient was a male, aged 24 years, whose chief complaints were hematuria for 6 months and a dull aching sensation in the right lumbar region. In addition, nycturia had been noted for two months.

His past history was negative. Physical examination was essentially negative except for slight tenderness over the right kidney.

Cystoscopic examination revealed a bloody urine from the right kidney with no indigo-carmin excretion in 15 minutes. Left kidney studies were normal.

Right pyelogram revealed a bizarre deformity of the pelvis. Blood chemistry studies were normal and Wassermann negative.

Right nephrectomy was performed and the patient made an uneventful recovery. There were no evidences of metastases.

This patient lived out of town and was operated on January 31, 1929; as yet no report has been obtained from him as to his present condition.

The specimen consists of kidney which measure 12x6 cm. Occupying the hilus is a large soft cellular nonencapsulated but fairly well circumscribed mass which is pinkish grey and quite friable. No further examination is made.

One section taken through the tumor shows a very cellular neoplastic process made up of uniformly oval and round cells with very large vesicular nuclei. The cells although separated by a fine stroma are closely packed and are greatly predominant over the stroma. Occasional mitotic figures can be seen. There are numerous blood vessels present and sinuses containing red blood cells. Section taken through the margin of tumor and renal tissue shows an unencapsulated invading process, the tumor cells extending into the medulla in irregular strands and forming small masses which are surrounded by kidney tissue. In one somewhat irregular vein in the medulla can be seen a small group of cells which are large, anaplastic and have large vesicular nuclei like the tumor cells already described. The kidney tissue in the section is seen to be rather compressed with an increase in fibrous tissue between the tubules and some of the tubules are quite dilated. Near the periphery the glomeruli are somewhat enlarged, the capillary tufts engorged.

Both of these cases were diagnosed sarcoma of the kidney. Sections from the first case were submitted to two well known pathologists, one of whom made a diagnosis of small round cell sarcoma, the other thought the tumor to be an angio-sarcoma or perithelioma.

This patient has recently been reexamined and shows no evidence of metastasis and the kidney function of the left kidney is normal.

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104 S. Michigan Avenue.

SPASM IN THE LOWER THIRD OF THE ESOPHAGUS

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Spasms in certain locations of the esophagus are well known. Spasmodic stenoses of the upper end of the esophagus (cricopharyngeal) and at the lower end at the level of the diaphragm (so-called cardiospasm) have been frequently encountered. Stenosis of other parts of the esophagus seems much more unusual. In July, 1926, G. W. Grier reported a case in the *Atlantic Medical Journal*, of spasm in the middle of the esophagus. The writer has recently encoun-

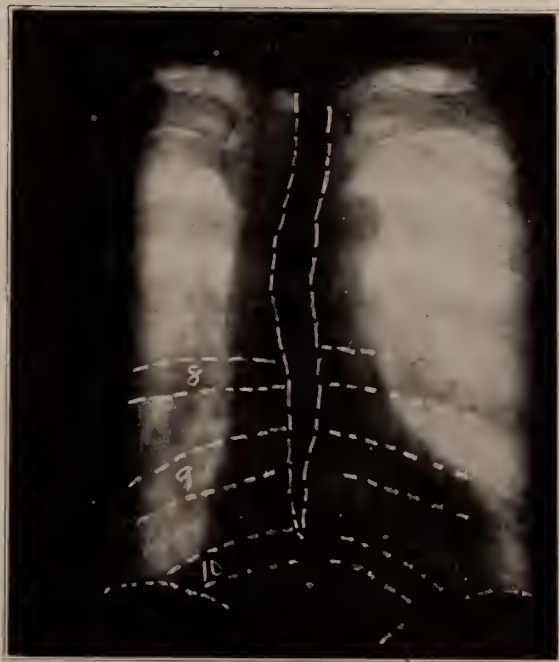


Fig. 1. Showing obstruction to barium, beginning at level of eighth dorsal vertebra.

tered the following case, illustrating spasm in the lower third of the esophagus:

Mr. J. H., aged 31, presented himself at the Clinic in April, 1930. He stated that he had never had any serious illness and had been perfectly well up until six weeks ago. At this time he noticed that while he was able to swallow solid food, yet in a few minutes most of it would be regurgitated. This condition became worse so that semisolid food also came back, and at the time he came to the Clinic even liquids such as milk, were regurgitated. He had lost fifteen

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pounds in weight and was suffering from lack of nourishment. At no time during the six weeks had there been any pain, fever or other symptoms.

On examination under the fluoroscope it was seen that the esophageal lumen began to narrow at a level about opposite the eighth dorsal vertebra. It soon came to a point, beyond which no barium could be seen. Under the fluoroscope the narrowing seemed quite smooth and regular. A roentgenogram was taken which shows the obstruction (Figure). It is apparent that the obstruction is definitely in the esophagus and above the diaphragmatic pinchcock. In the roentgenogram the obstruction has a slightly more irregular appearance than was seen under the fluoroscope.

A blood Wassermann was taken, which proved to be negative. At esophagoscopy a 10 mm. by 53 cm. Jackson esophagoscope was passed, under ether anesthesia. No obstruction or pathology of any sort was encountered, the tube being inserted practically its whole length so that the tip was 50 cm. from the anterior incisor teeth. With the negative findings it was evident that the obstruction was due to spasm. That evening the patient ate a bowl of soup, the next day several eggs, and in five days was eating everything and feeling fine. A fluoroscopic examination showed the barium entering the stomach in the usual normal manner.

Comment

There are several points of interest in cases of this type. In the first place the patient developed a spasm in the lower third of the esophagus. Repeated questioning did not elicit any factor which might have led to the development of the condition. The man did not appear to be of a nervous temperament, nor to be suffering from any stress or strain. The examination did not reveal any pathological condition which could have been an etiological factor. Therefore, the cause of the spasm is difficult to explain. Another point for consideration is that from an x-ray standpoint the condition might have been carcinoma. Had the patient been older it would be easy to see how a diagnosis of malignancy could have been made. Thus with a faulty diagnosis the patient would be very improperly treated, or perhaps given a hopeless prognosis and no treatment other than palliative advised.

It is evident, therefore, that esophageal examination with the esophagoscope is very important in these cases. Indirect bouginage might have relieved the symptoms just as well, but had the condition not been a spasm the procedure would not have been so safe. Furthermore, the esophagoscope allows one to actually see the whole extent of the esophagus whereas in indirect examination the actual conditions may only be determined by inference.

SAFETY PIN "TONGS" FOR FINGERS WITH REPORT OF CASE

EDSON B. FOWLER, M. D.

CHICAGO

The patient, injured in an automobile accident, sustained a compound comminuted fracture of the middle phalanx of the left middle, ring and little fingers with deep lacerations and extensive exposure of the flexor and extensor tendons. Two of the deep flexors had all of their distal portions destroyed. The other tendons, front and back, were exposed and

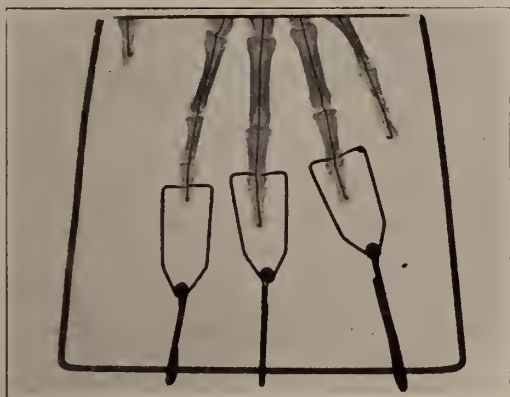


Cut 1. Phalanges six weeks after accident.

frayed. Fragments of bones were protruding, and four phalangeal joints were open. The three crushed fingers dangled a shapeless mass. They were cold, and the blood supply appeared to be destroyed. Amputation is too frequently employed in such cases. In this instance it was the opinion of other surgeons who saw the case that the fingers could not be saved. However, the fingers, freed from dirt, tags and devitalized tissue, were placed in warm normal saline solution, and kept warm several hours, after which a scanty blood supply was found to exist.

If, in such cases as just described, free drain-

age is secured and no wound closures made, even with abundant infection, they usually give no serious trouble, but the fingers must have sufficient fixed traction to hold the bony fragments and soft parts in good position with perfect immobilization. This can be accomplished best by skeletal traction. Appliances for such traction of the fingers are not at hand in most hospitals, nor readily obtainable at the surgical supply houses. In an effort to make a "tongs" or tractor that could be adapted to such cases, it was found that a 2½- or 3-inch safetypin, by means of pliers and file, could be made easily and quickly into an ideal tongs. Also a "banjo" splint was made from a ¼-inch metal rod incorporated in a plaster shell extending from the wrist to



Cut 2. Illustrating tongs and splint.

near the elbow. See Cut 2*. This skeletal traction gives not only alignment and immobilization, but also permits immersion baths, wet, dry or other dressing, light treatment, or none at all, as conditions indicate their need.

The tongs were removed about the sixth week

*Original X-Ray films were lost. Cut 2 is a skeleton hand used to illustrate tongs in position along with a racquet splint.



Cut 3. Hand with full extension.



Cut 4. Hand with the three injured fingers flexed. (Index finger has normal function.)

(see cut 1) when gentle active, and passive motion was started, and gradually increased as the bony union permitted. The fingers were healed at the end of ten weeks and remained so, except for the extrusion from time to time of several small fragments of dead bone.

Six months after the accident the patient said he could do practically everything with the injured fingers that he could before the accident, including playing the piano. Reference to Cuts 3 and 4, however, shows a limitation of flexion of the distal phalanges due to the loss of the deep flexor function. Also the middle and ring fingers are shortened somewhat due to loss of bone.

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THE PROGNOSIS AND DIFFERENTIAL DIAGNOSIS OF NEPHRITIS IN CHILDREN*

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Because we hoped by careful and prolonged observation of children with nephritis to assimilate more concrete ideas as to the prognosis and diagnosis, the nephritic service was started at the Children's Memorial Hospital about ten years ago. I have recently summarized the observations made on the 186 patients who have been cared for on this service, many of whom have been followed for years. In reporting these cases,¹ it was found impossible to use any of the well known classifications because of the large

1. Aldrich, C. A.: Clinical Types of Nephritis in Childhood, J. A. M. A.

*Read before Illinois State Medical Meeting, Section on Medicine, May 22, 1930.

percentage of cases which could not be accurately pigeonholed. In an effort to find some way to handle this material, the entire group was sorted out so that clinically similar cases appeared together. Because this classification has made an accurate prognosis possible, it is presented here. Table I. shows the manner in which these cases were grouped.

Of the many reasons for the present uncertainty as to nephritis, one of the most important is the fact that we have been trying to name different diseases of this type by anatomic terms at a time when our meager knowledge does not enable us to make clinical diagnoses which accurately check with those found at autopsy. Due to this diagnostic inaccuracy the prognosis is uncertain. Study of the literature adds the additional difficulty that few men agree as to nomenclature.

The method of classification which has developed from this sorting process is more accurate because it enables one to place each case by actual clinical findings in the patient rather than by what is assumed to be the anatomic lesion in his kidneys. Too few cases have come to autopsy for us to claim that accurate anatomic diagnoses result, but I feel that this is of secondary importance to the clinician. He is more interested in knowing what is going to happen to the patient than he is in being able to tell what parts of the patient's kidneys are involved. An analogous situation is seen in the cardiac clinics. We are now hearing more of rheumatic carditis, subacute bacterial endocarditis and syphilitic carditis, and less about mitral insufficiency, aortic stenosis and other purely anatomic lesions. Because it is more important to know the type of disease from which the patient is suffering than it is to know the exact location of his lesions, a clinical rather than an anatomical classification is suggested in nephritis.

It should be remembered that children with nephritis do not suffer from degenerative cardiovascular disease so that these cases cannot be compared with those in an adult series. Children who did not show clinical evidence of nephritis in addition to abnormalities of the urine were not included in this group; therefore, orthostatic albuminuria and febrile albuminuria are not considered. All were followed in the dispensary for as long a period as possible so

that an estimate of the ultimate prognosis can be made. Table 2. shows the duration of observation in these children.

Since the prognosis is so different in the various types of disease, it is useless to consider that of the general group. To give an accurate prognosis in a specific case, a correct differential diagnosis is essential. Reference to Table 1. shows that after sorting the cases, seven groups were found, only the first three of which numbered more than a few members.

CRITERIA FOR DIFFERENTIAL DIAGNOSIS

1. Acute Postinfectious Hemorrhagic Nephritis.
 - a. History of antecedent acute infection.
 - b. Hematuria.
 - c. Benign course or death in acute illness.
2. Chronic Nonspecific Nephritis.
 - a. Edema.
 - b. Hematuria.
 - c. Hypertension.
 - d. Increase in blood non-protein nitrogen estimations.
 - e. Chronic course or death.
3. Nephrosis.
 - a. Marked edema.
 - b. Absence of hematuria at all times.
 - c. Normal blood pressure.
 - d. Normal blood non-protein nitrogen readings.
 - e. Marked albuminuria.
4. Subacute Bacterial Endocarditis with Nephritis.
 - a. Edema.
 - b. Signs of subacute bacterial endocarditis.
 - c. Blood, albumin, casts, and leucocytes in urine.
5. Syphilis with Nephritis.
 - a. Criteria for diagnosis of chronic non-specific nephritis.
 - b. Diagnosis of Syphilis.
6. Tuberculosis with Nephritis.
 - a. Criteria for diagnosis of chronic nonspecific nephritis.
 - b. Diagnosis of military tuberculosis.
7. Renal Infantilism.
 - a. Criteria for diagnosis of chronic nonspecific nephritis.
 - b. Infantilism.

How closely the actual findings in the patients agreed with the diagnostic criteria is shown in Table 3. Relatively few exceptions were found necessary. At this point, it must be emphasized that the differential diagnosis was always progressive, that frequently it could not be made at one observation, and that I was unashamed at changing a provisional opinion because of subsequent events. It sometimes happens that a patient who has previously exhibited all of the clinical findings of nephrosis, suddenly passes blood in the urine. In my opinion this removes

such a patient immediately from classification as nephrosis. Subsequent events and autopsies have always justified this attitude in our clinic. Similarly, when a patient supposed to have acute postinfectious hemorrhagic nephritis does not improve after a few weeks, runs a continuously high blood pressure, and shows increasing amounts of nonprotein nitrogen in the blood, one suspects that the tentative diagnosis was wrong, that what was thought to have been an acute onset might have been an exacerbation in the course of insidious disease. Since these mistakes are impossible to avoid they illustrate the importance of withholding final decision until time has tested the tentative diagnosis.

Having made a careful, time-consuming, differential diagnosis, the prognosis is already made with a fair degree of accuracy. The accompanying table will show what outlook is indicated in each group. Table 4.

In *acute postinfectious hemorrhagic nephritis* 6.2 per cent. of the patients died. Deaths were due to the infection that caused the nephritis, to cerebral complications, or to anuria (one case). No case so classified developed chronic nephritis, but this may be due to the fact that such cases would appear in the group with chronic nonspecific nephritis. In order to estimate the percentage of the acute cases which develop chronic disease we must study the onset of the chronic cases. Only eight of the twenty-six patients diagnosed chronic nonspecific nephritis gave any history of acute infection at the onset of their trouble. Of these eight, six were said to have had ordinary "colds," and but two were known to have had the acute, febrile type of infection so constantly found associated with the post-infectious type. (Table 5.) It is readily conceivable, since infections tend to exaggerate the symptoms of most diseases, that in the eight children who gave histories of antecedent infections, the nephritis might have been first noticed at this time of exacerbation due to an intercurrent disease. It is not definitely demonstrated in this series that chronic nephritis resulted from the acute postinfectious type of nephritis.

The chances for ultimate recovery in this acute disease are very good. The prognosis should be guarded as to the immediate future whenever the causal infection is, in itself, of a serious nature, or when severe cerebral symptoms inter-

vene. This so-called convulsive uremia, however, should not in any way cloud the ultimate prognosis once the acute symptoms are over. All such patients were entirely well when last observed.

In *chronic nonspecific nephritis* these statistics point to an absolutely bad prognosis, no patient in this group having entirely recovered. 54.2 per cent. have died up to the present time. These figures should not be considered final, however, because some of those still under observation may yet recover. I feel that we do not know the cause of this condition, but that it is conceivable in some cases that the progressive course of the disease might be checked, leaving enough functioning kidney substance to permit of normal existence. Two or three of these patients still under observation show fairly good renal function, and successive examinations show steady improvement.

In *nephrosis* the prognosis is less definitely indicated, 40 per cent. having recovered, 35 per cent. having died, and 25 per cent. still showing abnormalities in the urine. The prognosis in this group depends largely upon the prevention of intercurrent infections from which many of them die. On the other hand, many of those who recovered did so immediately after severe streptococcic infections with high, septic temperatures. Patients may completely recover from this condition even after a year, or more, of constant illness.

None of those with *subacute bacterial endocarditis with nephritis* recovered. The course in these patients was more rapidly fatal than it was in those with other types of the disease, lasting only a few weeks as a rule.

No patient with *renal infantilism* recovered but one is alive and going to school at ten years of age.

Those with *syphilis with nephritis* and with *tuberculosis with nephritis* have all died. There were no remissions in the downward and rapid course of the disease.

Some of the specific clinical points which aid both in diagnosis and prognosis should be mentioned.

In this connection the *history of onset* is most important. In this series the more definite the evidence of acute infection when first observed, the better was the chance of recovery. This is because of the usual good outcome in the post-

infectious type. Of thirty-two children with nephritis and hematuria who presented no evidence of acute antecedent infection, only five are well today. Absence of infection at the onset suggests a diagnosis of chronic nonspecific nephritis with its gloomy outlook.

The *physical examination* at the time the patient is first seen may give evidence in this regard even if the history does not indicate the presence of infection. I am always glad to find an abscess of the throat in such patients because I have learned that its evacuation is soon followed by recovery, whereas if cervical adenitis alone is found, relief is delayed indefinitely. The facility with which this infection can be treated also influences prognosis. If an ethmoid sinusitis is present, therapeutically more difficulty will be encountered than in acute follicular tonsillitis. A severe pneumonia will not respond to treatment as quickly as an accessible encapsulated empyema. In general, the more evident and amenable to treatment the accompanying infection, the better the prognosis.

The *clinical course* of the disease becomes increasingly important with lapse of time. When improvement is continuous the prognosis becomes more hopeful even after months of illness. Especially is this true in nephrosis.

The *degree of edema* and the *duration of the edematous phase* of the disease have been used as indices. I have not been able to find any relationship between degree of edema and the prognosis except as this influences the immediate situation and the diagnosis. Recovery may take place after months of severe edema. However, when, after careful observations, one is convinced that a patient with hematuria becomes edema-free on a salt-free diet, the prognosis is bad. This is because only those with chronic nonspecific nephritis have had a diuresis following this method of treatment.

Edema of the lungs is of serious import. This is an indication for abdominal paracentesis if ascites is present. In several instances I have seen marked relief follow this procedure.

Edema of the larynx is a grave complication. Three of these patients have died as a result of this condition which is not easily amenable to treatment.

Marked edema in chronic nonspecific nephritis is common *early* in the disease. Edema when present after the lapse of years in these patients

is usually of the cardiac type and due to heart failure.

The results of the *two-hour specific gravity test* are of assistance in diagnosis and prognosis, but here, too, emphasis should not be placed on the results of any one test. In nephrosis there is a tendency to high specific gravity with a fairly good variation. In the acute postinfectious cases the specific gravity may be fixed at first, but this rapidly improves. In chronic nonspecific nephritis there is usually a low fixation in a relatively early stage of the disease. This does not improve to any great extent and the specific gravity becomes lower and lower with time. These rules should not be accepted too strictly as exceptions are fairly common.

The *phenolsulphonephthalein test* shows a high percentage of dye returned even after prolonged illness with nephrosis. A good return is often found in postinfectious cases, although it may be reduced in the early stages. In the cases of chronic nonspecific nephritis there is an extremely low return early in the disease. A persistently poor return is a bad prognostic sign.

The amount of *nitrogen retention* in the blood may assist in arriving at conclusions, but it is often misinterpreted. The results of a single examination are of no value except in differentiating between nephrosis and the hematuric types. Patients with extremely high readings may get well. In two who have completely recovered the creatinine figure was above 6 mg. per 100 cc. I have been taught that this was impossible. If, on the other hand, the nitrogen retention increased steadily over a period of months there was little hope of recovery.

Similarly, the *blood pressure* estimations if made often over a long period may point out the trend of the disease. One reading, even if extremely high, should never be accepted as evidence of chronic nephritis. The blood pressure is of most importance as a measure of the immediate prognosis in acute postinfectious hemorrhagic nephritis. In this condition, hypertension may indicate the onset of cerebral complications, so-called uremia. So necessary do I consider frequent blood pressure readings that in acute cases I would rather do without the clinical laboratory than without the blood pressure instrument.

The *urinary abnormalities* found influence the

prognosis only as they do the diagnosis and as they improve or get worse.

SUMMARY

The diagnosis in this clinic is made as follows: Every patient who enters with a definite diagnosis of nephritis is considered to have acute postinfectious hemorrhagic nephritis until this is disproved.

If no blood is found in the urine after repeated examinations, and if the other diagnostic criteria of nephrosis are present, he is placed in this group—but always on probation. Any subsequent showing of blood in the urine will mean another change in diagnosis, this time probably into the group with chronic nonspecific nephritis.

If in another patient there is no history or evidence of acute infection, reservations as to the correctness of the tentative diagnosis of the postinfectious type are made at once. If in addition, function tests show marked impairment, and the patient has a “chronic look,” the tentative diagnosis of chronic nonspecific nephritis is made.

When the patient has marked abdominal symptoms and when there is an endocarditis present, it is considered likely that he suffers from subacute bacterial endocarditis with nephritis. It must be remembered in this connection, however, that a patient with a chronic, quiescent endocarditis may develop acute postinfectious nephritis with a good prognosis.

If he is infantile in stature and exhibits the other criteria for the diagnosis, he is said to have renal infantilism.

If it is possible to make a diagnosis of active syphilis or miliary tuberculosis the patient is of course taken out of the hopeful postinfectious group.

This method of procedure is justified because by its use we have been able to arrive at an early diagnosis which was satisfactory in its prognostic implications and for purposes of treatment. How closely these clinical diagnoses will check with those made at autopsy time alone will tell. However, the following results have been accomplished. In acute postinfectious hemorrhagic nephritis we have found extreme variations in kidney abnormality, ranging from very slightly pathological kidneys to those with all glomeruli hyalinized. Among those diagnosed as nephrosis we have found tubular degeneration and

no definite glomerular changes. In those called chronic nonspecific nephritis we have always found a diffuse sclerosing process involving all structures in both kidneys. In those cases which came to autopsy with the diagnosis of subacute bacterial endocarditis with nephritis, the endocarditis was found in addition to diffuse embolic lesions in the kidneys. The one case with renal infantilism which was examined post mortem was still infantile at the time of death and had minute completely sclerosed kidneys with little functioning tissue and some evidence of ascending infection. The cases of tuberculosis and syphilis showed the expected lesions of the specific disease, plus diffuse sclerosing nephritis. It is felt that until more definite knowledge of the pathogenesis of nephritis is available, these clinical diagnoses are sufficiently valuable and accurate for general use.

This paper should be considered merely a report of what has actually happened to date in this relatively small series. Another ten years’ experience may change these conclusions.

TABLE 1

Acute Postinfectious Hemorrhagic Nephritis.....	129	cases
Chronic Nonspecific Nephritis	24	“
Nephrosis	20	“
Subacute Bacterial Endocarditis with Nephritis.....	5	“
Syphilis with Nephritis.....	3	“
Tuberculosis with Nephritis	2	“
Renal Infantilism	3	“

186 cases

TABLE 2
DURATION OF OBSERVATION ALL TYPES

	Po. inf. Hem. Neph.	Nonspec. Nephrit.	Nephrosis	Nephritis Sub. ac. Bact. End.	Syphil. Neph.	Tub. Neph.	R. I.
Less than 4 mo.....	37	5	6	3	2	..	..
4 mo. to 1 yr.....	17	8	4	2	1	..	..
1—2 years	17	2	1	..	..	..	1
2—3 years	11	4	2	..	..	..	1
3—4 years	17	4	3	..	..	..	..
4—5 years	10	1	1	..	..	..	1
5—6 years	8	..	..	..	..	..	..
6—7 years	7	..	2	..	..	..	..
7—8 years	2	..	1	..	..	..	..
8—9 years	2	..	..	..	..	..	..
9—10 years	1	..	..	..	..	..	..
10 years							
Summary:							
Under 4 months	55	cases					
Over 4 months	131	cases					
Over 1 year	99	cases					
Over 2 years	78	cases					
Over 3 years	60	cases					
Over 4 years	36	cases					
Over 5 years	23	cases					
Over 6 years	15	cases					
Over 7 years	6	cases					
Over 8 years	3	cases					
Over 9 years	1	case.					

TABLE 3

TABLE SHOWING IN THE MAIN GROUPS HOW CLOSELY THE ACTUAL FINDINGS AGREE WITH THE DIAGNOSTIC CRITERIA

	No. cases in group	No. cases differing	% which agree
Diagnosis and cardinal points	129		
Acute Post-infectious Nephritis.....			
Antecedent infection	5	96	
Hematuria	0	100	
Course	0	100	
Nonspecific Nephritis	24		
Edema	0	100	
Hematuria	1	96	
Hypertension	0	100	
Increased blood nitrogen.....	1	96	
Course	0	100	
Nephrosis	20		
Edema	0	100	
No hematuria	0	100	
Normal blood pressure.....	2	90	
No increased blood nitrogen....	0	100	
Marked albuminuria	0	100	
Subacute Bacterial Endocarditis with Nephritis	5		
Edema	0	100	
Physical signs endocarditis.....	0	100	
Pathologic urinary findings	0	100	

TABLE 4

PROGNOSIS IN VARIOUS TYPES

	No.	Recovered or Convalescent	Clinical ill.	Died
Postinfectious Hemorrhagic Nephritis	129	120* 93.0%	1† 0.8%	8‡ 6.2%
Nonspecific Nephritis	24	0 ..	11 45.8%	13 54.2%
Nephrosis	20	8 40.0%	5§ 25.0%	7 35.0%
Subacute Bacterial Endocarditis with Nephritis	5	0 ..	1 20.0%	4 80.0%
Renal Infantilism..	3	0 ..	1 33.3%	2 66.6%
Syphilitic Nephritis	3	0 ..	0 ..	3 100.0%
Tubercular Nephritis	2	0 ..	0 ..	2 100.0%

†1 under observation 1 day only.
*3 had symptomless albuminuria at last observation and 5 are still convalescent from the acute attack.
‡4 died from other causes, these not being included in the 8 deaths.
§4 had no other findings than marked albuminuria.

DISCUSSION

Dr. O. E. Barbour, Peoria: Dr. Aldrich's paper is certainly timely and very practical. Nephritis in children presents many problems that do not correspond to those of nephritis in adults. The type which is most prevalent in adults, the chronic type associated with degenerative changes in the circulatory system, is rarely found in children. They are usually secondary to processes elsewhere in the body. There has been little research done on nephritis in children in comparison with some of the other problems in pediatrics. Therefore, most of our information and data to date have been obtained from the adult type. We have to interpret the various laboratory and functional tests according to the findings in adults, and we cannot as yet be sure these tests are as significant as they are in adults. The old classifications of nephritis in adults have been abandoned. They are confusing to the diag-

TABLE 5

INCIDENCE OF ANTECEDENT INFECTION IN THE THREE MAIN GROUPS

Infection	Ac. Post. Infl. Neph.		Nonspec. Nephritis		Nephrosis	
	No.	%	No.	%	No.	%
Sore Throat	63	49%	2	8%	3	15%
Cervical Adenitis ...	44	35%	..	..	1	5%
Otitis media	29	23%	..	..	2	10%
Scarlet fever	19	15%	..	..	..	..
Acute nasal infection, febrile	14	11%	..	..	..	..
Pneumonia	7	5%	..	..	2	10%
Slight "cold" .....	..	..	6	25%	7	35%
Sinus infection	2	2%	..	..	2	10%
Abscessed throat ...	5	4%	..	..	1	5%
Cough, bronchitis ..	5	4%	..	..	2	10%
Measles	3	2%	..	..	..	..
Empyema	2	2%	..	..	..	..
Mumps	1	1%	..	..	..	..
Conjunctivitis	1	1%	..	..	..	..
Rheumatism	2	2%	..	..	..	..
Pericarditis	1	1%	..	..	..	..
Tooth infection	2	2%	..	..	..	..
Osteomyelitis	1	1%	..	..	..	..
Undiagnosed febrile attack .....	..	..	..	..	1	5%
Hodgkin's disease....	..	..	..	..	1	5%
No History or evidence of infection.	5	4%	16	66%	1	5%

Note: As many of the infections were multiple in each patient the % columns do not add to 100%.

nosis rather than helpful. The purpose of any classification should be to present the features of the disease in a comprehensive manner. It should lead the way to a better understanding of the disease. I believe Dr. Aldrich's classification approaches that ideal more nearly than any other. Functional and clinical examinations are essential to correct diagnosis. Whether the presence of casts and albumin is transitory during the attack or whether it is chronic can be found out only by repeated examinations. Dr. Aldrich states that the blood pressure is important in these types. I would like to ask about hypertension, whether it affects the final prognosis, and whether he has found that uremic convulsions indicate a grave prognosis. I have seen some cases make a complete recovery, and have seen some die, and I have wondered at their significance. This paper is a progressive step in research work on nephritis in children, and I hope Dr. Aldrich continues the good work.

Dr. C. Anderson Aldrich, Winnetka (closing): One point was brought out in my paper which I wish to emphasize, and that is, while I have no desire to appear to be a reactionary, I have studied these chronic cases very carefully, some for as long as seven or eight years, and I am not able at the present time to say that focal infection has anything to do with the disease. In cases where focal infection was found and removed, we had no improvement. If an acute infection is superimposed on chronic disease, a flareup ensues, however. I do not think we know anything about the etiology of this disease. It is not common in private practice. All these cases where dispensary cases from the Children's Memorial Hospital.

I do not want to confuse you about nephritis, but it seems clear to me that we are dealing with three or

four different disease processes, not with three or four places where a disease affects the kidney. Albuminuria is common in children, but I do not know the cause. The cases reported here had other clinical findings of nephritis; at least edema or hematuria. As to the question of hypertension and the prognosis in uremia, I have never seen a case with cerebral symptoms in acute nephritis that did not have a high blood pressure—130 to 200. I should say that one high reading in a child has nothing to do with the ultimate prognosis, providing you are sure the child has the acute disease. If the mother tells you the child had swollen glands of the neck and then he had bloody urine and convulsions, the prognosis may be good as soon as convulsive seizures cease. But if you do not get that history of infection, prognosis must be guarded.

RECENT ADVANCES IN THE EPIDEMIOLOGY OF INTESTINAL DISEASES*

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The major contributions of the last decade in the field of the epidemiology of the diseases spread by alvine discharges have been based more upon studies of the host than upon examination of the parasitic micro-organism responsible for these diseases. The infectious intestinal diseases are, after all, caused by a combination of two reactions, the human and the parasite. The human must serve as the host for the colonization and as the cultural media for the invading bacteria. We know from the work of Topley of England that there is a delicate balance between the human population and the bacteria surrounding, and in contact with, them. We are aided in these studies by knowing that the only reservoir from which the causative agent of these diseases can be derived in large quantities are from humans suffering from these intestinal diseases.

The material within the lumen of the alimentary canal, from the oral cavity to the anal opening, is outside of the body. The lining mucosa of the digestive tube is a body covering layer. The gastric, pancreatic and hepatic secretions are poured upon a body surface the same as the sweat. The concentration of acid and basic substances within the lumen of the alimentary tube is automatically adjusted by the glandular secre-

tions into this canal. The stomach secretes acid into the cavity of this organ to completely saturate the contents with acid and a certain amount of free acid over and above the saturation point is normally present during digestion. The pancreas, the liver and the mucosal glands of the small intestine secrete an alkaline reacting fluid, containing enzymes, into the lumen of the small intestine. These fluids are mixed and absorption into the body of certain organic and inorganic substances takes place. The mixing and the digesting processes takes place outside of the body within the hollow alimentary tube.

The bacteria causing typhoid and paratyphoid fevers and bacillary dysentery are swallowed by mouth and enter the body by passing through the mucosa of the small intestine. There are two ways of preventing these diseases. One is to prevent these bacteria from coming in contact with man's intestinal tract, the other is to prevent these bacteria from entering the body after they have come in contact with man.

Chart I shows the relative reaction and bacterial flora of the alimentary tract. The bacterial flora and the H-ion concentration are relatively constant for the segments indicated. The bacterial life must then be regulated by some auto-sterilizing or self-regulatory mechanism. Otherwise, the types of bacteria inhabiting the alimentary canal would depend upon the bacteria swallowed in fluids and food. The predominantly fermentative or putrefactive bacteria within the large intestine can be controlled by diet. If a residue of non-absorbed sugar substances reach the large intestine, the fermenting types of bacterial life will outnumber the protein-decomposing types. If a residue of protein material, instead of carbohydrate, reaches the large intestine, the putrefactive bacteria will thrive better than the fermentative types. This does not hold true for the small intestine. The bacterial population residing within this part of the alimentary canal are remarkably constant, both in types and in numbers. That portion of the tract possessing the sparsely populated bacterial communities, namely, the duodenum and upper half of the jejunum, has the power of destroying foreign bacteria gaining entrance into this segment. Those swallowed by mouth are destroyed and those ascending from the lower levels are also destroyed. This is the big self-disinfecting

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zone of this body surface. There is little likelihood of foreign bacteria gaining entrance into the microbic population of the large intestine via the anus. The natural route is by oral ingestion. The upper part of the small intestine is the site of self-disinfection of the ingested bacteria.

This self-sterilization is as effective against pathogenic, as against non-pathogenic, bacteria. This is one of our most effective safeguards against gastro-intestinal diseases. The predis-

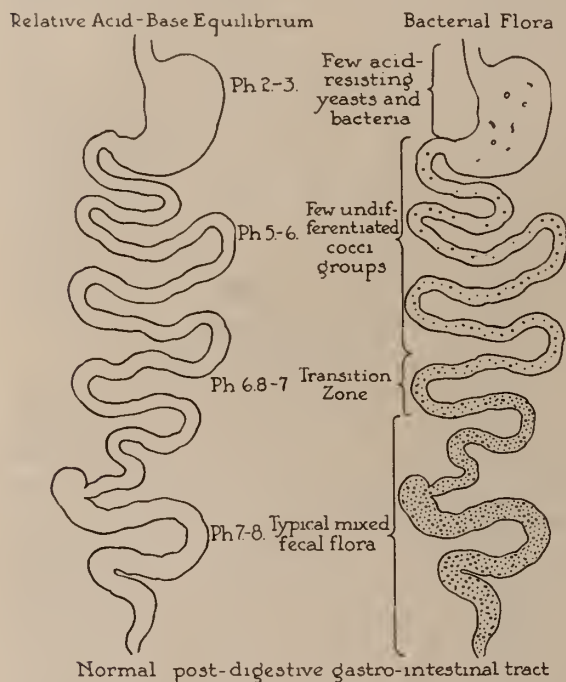


Chart 1. Bacterial flora and reaction of alimentary tract.

posing factors to typhoid, paratyphoid fevers and bacillary diarrheas are hot weather, food-poisoning diarrhea, polluted water-borne diarrhea, concentrations of people in flooded and storm swept areas, masses of people in military camps. These and similar conditions are known by experience to be associated with epidemic outbreaks of intestinal diseases.

The bacteriological, serological and pathological evidence leads us to believe the following chain of events takes place during the course of typhoid fever. The bacteria are swallowed with fluids or food. They are not exposed to a free hydrochloric acid solution in the stomach for any length of time, but pass through this organ in a viable state. The self-disinfecting power of the small intestine is temporarily inhibited for

some reason. The typhoid bacilli can then survive and multiply within the lumen of the intestinal tract. The ileum at least is the port of entry into the body of the *B. typhosus* in the majority of instances. These bacteria accumulate in the lymphatic tissue in the wall of the small intestine and remain in this tissue for several days. All of these things are taking place during the incubation period, before diagnostic symptoms develop. The individual is excreting thousands of typhoid bacilli per gram of feces. This is an incubationary carrier, an innocent carrier, but from a standpoint of community health, this person is a mobile typhoid reservoir. The time the patient has an acute febrile reaction approximately coincides with the time the *B. typhosus* overflows the lymphatic structures in the mesenteric region and invades the blood stream. The endothelial cells lining the capillary and sinusoidal spaces in the liver phagocytize the passing *B. typhosus* from the portal blood. An innumerable quantity of *B. typhosus* are taken up by these cells. Many of them are not digested within these cells, but are passed on through them into the beginning branches of the bile capillaries. These *B. typhosus* are suspended in bile and find their way into the gall bladder and again into the lumen of the small intestine. There is a continuous circle established, from the lumen of the alimentary tract into the body and back by way of the bile to the intestinal lumen again. Typhoid fever is a self-limiting disease. The patient manufactures immune substances and detoxifies his own body or he succumbs because he cannot do this. The average duration of active immunization before protection is established is three to four weeks. The large number of typhoid bacilli engulfed by the endothelial cells lining the small blood capillaries in the liver and passed on through these cells to the liver tissue and the bile channels leads at times to accumulations of masses of *B. typhosus* in the liver, outside of the blood and lymph vessels. There may be multiple minute areas of circumscribed masses of typhoid bacilli. These conditions lead to carrier states after recovery from typhoid fever. The typhoid bacilli may be near the larger bile passages, or even in the wall of the gall-bladder and then a persistent chronic typhoid carrier condition will most probably exist. The location of the ulceration, the

size and the number of the areas determine to some extent the relative number of *B. typhosus* excreted in the feces.

We wish now to introduce some new evidence upon factors that influence the typhoid carrier state after recovery from the disease. We have produced experimentally chronic fecal carriers in dogs. Under ether anesthetic and sterile operative procedures, the gall-bladder was incised, the contents removed and one agar plug, seeded well with bacteria, was sewed into the gall-bladder. For convenience we have at the same time established a non-leaking cecal fistula. Five to seven days after such an operation the animal can be used for experiments. Over half of the dogs have not shown any of the gall-bladder bacteria in the cecum or in the feces. One would assume that we had not produced a biliary carrier state in these animals. But if these animals are placed in hot and humid rooms, the biliary bacteria promptly appear in the cecum and the next feces passed after a sojourn in the summer temperature room show the biliary bacteria in the feces. The injection of some foreign protein causing a febrile reaction in the animals, is always followed by the appearances of the biliary bacteria in the large intestine. Substances producing a "food-poisoning"—like diarrhea, or a polluted water-borne-like diarrhea are always associated with the appearance in the excreta of large numbers of the biliary bacteria.

Further investigation has shown that the bacteria passed into the duodenum with the bile are destroyed within the lumen of the small intestine. Hence the majority of these animals were not fecal carriers. But as soon as we caused a systemic disturbance, this self-sterilizing power of the upper part of the alimentary tract was inhibited and as a consequence the biliary bacteria reached the lower intestine in large numbers.

These experiments illustrate the intermittency in the appearance in the feces of biliary bacteria. If the hepatic and bile duct system only contain a few or very minute areas of ulceration containing typhoid, paratyphoid or other pathogenic intestinal bacteria, these lesions may not cause enough intoxication of the old recovered case to disturb the self-disinfecting power of the small intestine. In this instance the bacteria carried into the lumen in the bile are destroyed before

reaching the large intestine. So long as these cases remain in a normal state of health they are harmless as spreaders of pathogenic bacteria.

We have found by experiments that just those conditions that cause an interference with the self-disinfecting power of the small intestine, allow biliary bacteria to pass down the lumen

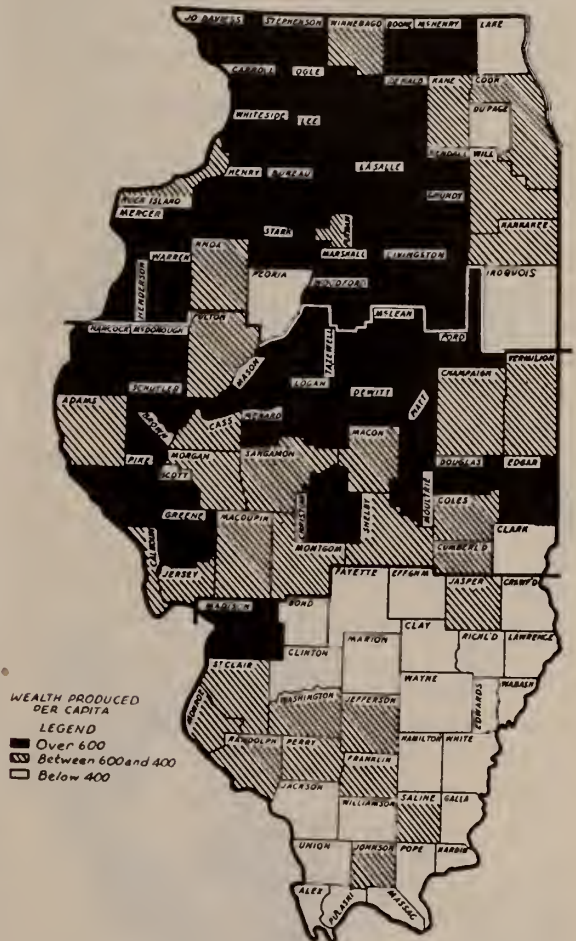


Chart 2. Per capita income by counties, in Illinois.

of the intestinal tract and appear in the feces. These conditions can be grouped under the general term of maladjustment to environment. We can for convenient purposes regard environment as composed of three principal factors; diet or nutrition, climate or meteorology and parasites or microbes. When a person is in a normal state of health, the physiological processes of the body are interacting in unism with each other. The person adapts himself or herself to their respective environment. Their physiological functions are not disturbed or unbalanced by any stimuli coming to them from the outside world. The

food ingested contains the proper caloric, acid-base and vitamin content. The seasonal changes in climate are not irritating, but are stimulating toward better co-ordination of body function. Parasites, microbes or bacteria have little opportunity to live in or upon such a perfect functioning host. If the equilibrium between such a person and these environmental factors is disturbed or unbalanced, then there is an increased susceptibility to bacterial invasion. One of the first

They will not be fecal carriers in those periods of undisturbed or normal body functions. This introduces a new viewpoint in the public health consideration of typhoid fever.

Mention has been made of the predisposing factors to typhoid fever. This is a summer disease. The host is most susceptible in hot weather due to the gastro-intestinal disturbances so common when the skin is hyperemic and trying to actively pass heat out of the body into a surrounding warm air cushion. The bacteria swallowed are not destroyed in the usual manner. Epidemics of diarrhea due to drinking polluted water are known to be followed by epidemics of typhoid fever. The gastro-intestinal dysfunction during the period of diarrhea should open up large reservoirs of typhoid bacilli by interfering with the self-destruction of these bacteria within the lumen of the small intestine. The same gastro-intestinal dysfunction during the period of diarrhea would make people more susceptible to the bacilli swallowed in fluids and in food. The 1926 typhoid fever epidemic in Hanover, Germany, due to pollution of the drinking water, showed a typhoid rate five to ten times as high in those wards with poor sewage system as in those with good sewage disposal systems. All drank the same water. There is no evidence whatever that the population in the poor sewage area drank more water than the other people. The chances of infection may well have been greater due to old recovered cases of typhoid becoming temporary carriers during the period of diarrhea. We have substantiated this idea in our animal experiments. The so-called "vacational typhoid" so prevalent in the larger communities in Illinois at the present time can be explained in part upon our experimental work. The vacationist feels that within the two weeks period they have away from work they must do all they can possibly do. The exposure to the sunshine reddens or blisters the skin, over-exercise or exertion leads to hunger and over-eating. Diarrhea is a common ailment of the vacationist. The small resort hotels are not equipped for such crowds as they handle during July and August. The sewage disposal system is overloaded, if it can be found at all. After returning to work, feeling tired and glad to rest on the job, the vacationist sometimes develops typhoid fever. The reservoir for *B. typhosus* has been opened up and the seeds have found favorable soil in

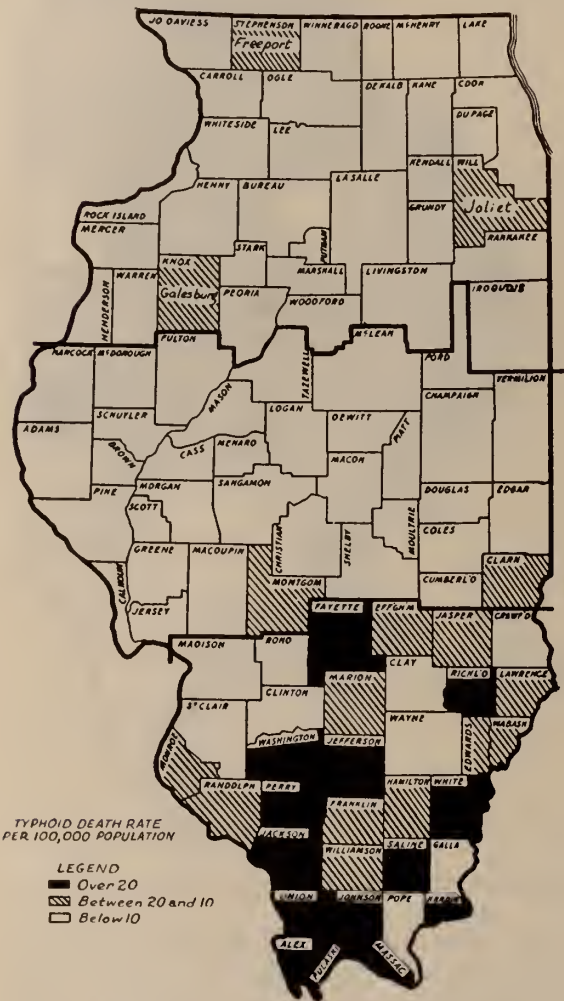


Chart 3. Typhoid death rate per 100,000 population, by counties, in Illinois.

demonstrable changes that take place during this period of transition from a healthy perfect working physiological machine to an imperfect unbalanced abnormal machine, is that the intestinal tract loses its power to control and regulate the bacterial population residing within its lumen. If such a person has typhoid or paratyphoid bacilli in their bile, they will be fecal carriers during those periods of disturbed body functions.

the alimentary tract of the contact vacationist. The epidemics of typhoid fever after floods, cyclones, earthquakes and such disasters can well be due to the gastro-intestinal dysfunction associated with the drinking of unsanitary water, starvation or partial starvation, anxiety, worry and fright. All contribute toward making the affected population extremely susceptible to the intestinal pathogenic bacilli. These same conditions cause otherwise harmless recovered typhoid cases to be open reservoirs of typhoid bacilli. The typhoid fever cases occurring two to three weeks after a "food-poisoning outbreak" can well be due to a similar epidemiological condition. The bacteriologists rarely find *B. typhosus* in the suspected food; these bacilli may well be derived from an intermittent carrier, who under normal conditions would be harmless.

Chart 2 illustrates the per capita income of the population of Illinois by counties for 1925. It will be observed that the northern part of the state is wealthier than the southern part. This means more than dollars and cents. A relatively high per capita income means good sanitation, wholesome food, time for play and recreation, proper housing conditions and many kindred factors that lead to a better state of health. Chart 3 illustrates the distribution of deaths from typhoid fever in Illinois by counties based upon the number of deaths per 100,000 population. The southern part of the state has a much higher incidence of typhoid fever than the northern part. Sanitation is only one of many factors. Sanitation in cities and small towns is approximately the same in all parts of the state. The per capita income of the people living in the southern part of the state is an index of their health level. There are ninety recovered cases of typhoid fever for each ten deaths. There are more actual and potential carriers in the southern part of the state. The margin of safety in intestinal self-disinfection is much less in a population living under the economic conditions existing in our southern counties.

Susceptibility to typhoid and paratyphoid fever is greater in a population that is not in a good state of health. We have explained this in the preceding pages. The auto-sterilizing power of the alimentary tract has a public health significance. The host is not only more susceptible, but the distribution of *B. typhosus* is greater among the same population. A monograph

could be written upon the newer knowledge of the epidemiology of infectious intestinal diseases. Sufficient has been recorded here to emphasize the importance of the health of people as an important factor in the control of these diseases. It is the function of the State Department of Public Health to disseminate knowledge to the citizens of Illinois, as well as other states, as to how to keep healthy and emphasize the prevention of disease by maintaining a state of physiological health. The individual who has for any reason become unhealthy, or is in a state of dysfunction, should be under the care of a practitioner of medicine.

SUMMARY

The prevention and control of infectious intestinal diseases has been based upon two principles. First, the restriction of the distribution of the bacterial causative agent. Second, the increase in the resistance of the population to the causative agent.

The author has dealt with the second principle of control and has introduced recent evidence to show that the resistance or susceptibility to infectious gastro-intestinal diseases can be influenced by the state of health of the population.

The healthy individual is one who adapts himself to his environment. The unhealthy individual is in a state of maladjustment to his environment. The economic status of a given population is a partial index of the health level.

One of nature's safeguards against bacterial invasion is the self-disinfecting power of the intestinal tract. The influence of this biological first line of defense against disease has been emphasized in several ways in connection with the epidemiology of typhoid and paratyphoid fever.

THE TREATMENT OF ACUTE EPIDIDYMITIS BY THE INTRAVENOUS INJECTIONS OF DIAMINDISULPHORICINOLARGENTUM

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Intravenous therapy in the treatment of epididymitis was first used by Murata in 1915, who published his results in the *Sei-I-Kwai Medical*

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Journal in Tokyo. Murata injected 30 grams of a calcium salt in solution intravenously with success. Stern & Ritter (1916) were the first to note the effects of intravenous injections of sterile solution of sodium iodide in gonorrheal epididymitis. Since that time many different drugs and methods have been used with varying degrees of success. Epidymotomy as described by Hagner & Cunningham has been the most successful of all methods of treatment until the present time. However, hospitalization is necessary under this treatment as under other methods and an expense and inconvenience to the patient results. Loss of time at work and added expense of hospitalization are important items to the average patient and should be eliminated if possible. With this in view research has been conducted with different methods. The conservative expectant treatment has proven too slow. Calcium chloride, sodium iodide or mercurochrome injections intravenously have given so divergent results that no practical interpretation of their value can be given at the present time. This is illustrated by the work of L. Wright (1923), Radai (1922), Chenery (1924), Leff & Spencer (1926) and Eric Stone (1927). Diathermy, originally recommended by Corbus and O'Conner (1924), has been fairly successful, as shown by Stone (1927) and Goldstein (1930).

Non-specific protein therapy has given very favorable results. Milk injections were first used by Schmidt in Prague in 1915. Since then impetus has been given this form of treatment and a large mass of literature has accumulated. Cows' milk being easily obtained has received the greatest study. Variations of proteins from milk itself to split products and even bacterial cultures have been studied. Injections are made intramuscularly or intradermally and the results seem to be dependent on the reaction obtained, which is of the anaphylactic type. An increase in temperature and leukocytosis is the result. The stimulation of metabolism by inciting increased activity of the defense mechanism seems to be the aim in this method of treatment. The reaction no doubt is caused by the fact that the non-specific protein, whether milk or a bacterial vaccine, is a foreign body which sets up in the body a specific action of elimination. Hence increased activity in the defense mechanism results.

In his paper on the intravenous treatment of septic conditions, Dr. Cyril J. Larkin states:

"Infection and pathology occur in the human body only when a foreign body invades a region which will not tolerate its presence or when it disturbs the normal functioning of the body cells or fluids. The principle of the survival of the fittest is undoubtedly the natural order of life and the fundamental principle of the preservation of the species cannot be ignored in the functioning of living cells. This would hold in general from the largest metazoan to the smallest microorganism. Hence, we may assume that any living cell, or group of cells, possesses defensive devices which will aid in the battle for life. Therefore in the study of the pathogenic conditions and means of overcoming them, the study of the defensive mechanism of the organisms causing pathology is as important as the study of the defense methods of the host. Past research has established beyond question that the body possesses both physical and physiological means of eliminating foreign invaders and restoring normal functioning. The defensive mechanism of the host is called into action only when an enemy organism enters and disturbs the normal functioning of the system. Elimination of the foreign substance is the primary act. When this foreign substance is a live microorganism, it is naturally going to put up a fight for its life and consequently it creates a counter defensive. From this we may assume that the means of defense of a microorganism are of such a nature that they would successfully carry on a fight with the natural defenses of the host, since in life the means of defense are identical with the means of offense. The logical conclusion is then that the microorganism generates for its own defense substances that might be toxins in order to divert the efforts of the defensive system of the host. Often the toxins generated are of such a nature that they may not only paralyze and impair the defense mechanism of the host but further undermine and distort the functioning and metabolism of the whole system. Immune bodies have been demonstrated in serums. Phagocytic action (the ingestion of foreign particles) has been demonstrated by the cells of the reticulo endothelial system. The experiments of Stewart & Parker (1926) show the reticulo endothelial blockade to be nothing more than the demonstration of the mechanical process of elimination of foreign bodies from the system. If a detoxifying agent introduced in the system would neutralize a certain amount of toxin or if a direct germicide would kill a certain number of bacteria without injuring the efficiency of the defensive system of the host a certain portion of the defense system would be relieved and increased efficiency would result. Such an agent would have to be so introduced that it would reach the focus of infection in the least possible time. Also it must be so distributed as to have direct contact with such toxins or organisms as are to be combatted. Further, it would have to be absolutely compatible to the system of the host, so as not to further divert the defense system."

With the above statements in view, a study of the pathology and mechanism of epididymitis

will show that it is especially adapted to such treatment.

Experiments conducted by Dr. H. C. Rolnick have determined very conclusively the mechanism of infection in epididymitis. His paper, read before the Chicago Urological Society in 1928, states:

"The inability to inject fluids through the vas deferens beyond the tail of the epididymis of experimental animals and also that of the living human is a factor which apparently had not been previously considered. The deductions made from this finding were that bacteria from the infected seminal vesicle traveling along the lumen of the vas deferens in the development of epididymitis are prevented from passing along the lumen of the epididymis beyond the tail by the same mechanical or anatomical factors that prevent the forcing of fluids beyond the tail.

"The microscopic pathology brought out one finding quite distinctly, that is, that the inflammation even in the tail of the epididymis is not intratubular but is peritubular and interstitial. It also demonstrated that the involvement in the head and body was interstitial and not intratubular.

"The last series of experiments verified the previous findings that the primary seat of the inflammation is around and between the tubules and not in the lumen and, that direct medication of the epididymis through the vas is therefore of no value."

Medication of the epididymis must therefore be accomplished by the intravenous method. That intravenous injections reach the epididymis was proven by Belfield & Rolnick (1927) when they demonstrated that the epididymis excreted certain dyes injected intravenously. This is further demonstrated in the results obtained by various men in intravenous treatment of epididymitis: J. S. Chalmers (1928), J. Wilke (1929), L. Wright (1923), A. C. Chenery (1929), Leff & Spencer (1926).

There has been much discussion as to the advisability of intravenous medication. Intravenous injections, when properly made, are less painful than subcutaneous or intramuscular injections. From this it would follow that if the probability of dangerous reactions were eliminated, intravenous medication would be the ideal method, particularly in view of the fact that more speed in distribution and action are obtained.

Conditions have been described which the ideal chemotherapeutic agent to be used intravenously must fulfill.

1. It must be absolutely compatible with the body tissues and fluids so as to cause no reaction.

2. It should be capable of either killing organisms directly or of stimulating the defense system so as to increase the antibody action.

There are other factors which would be desirable, but a substance that complied with the above conditions would amply satisfy except in cases where damage had already occurred, due to action of exotoxins of the invading organism. In such a case an agent which would be capable of neutralizing bacterial toxins would be desirable.

Until recently such an agent was not available. It has long been known that ricinoleic acid and its derivatives neutralized bacterial toxins. Salts of ricinoleo sulphuric acid proved to be much more efficient than salts of pure ricinoleic acid. The silver salt of sulphoricinoleic acid proved to be a very efficient agent in the treatment of bacterial infections and diseases. With the mechanism of epididymitis in view, the properties of diamindisulphoricinargentum led us to believe that it would be a great aid in this complication. It was decided to use this compound exclusively in order to determine its actual value and if possible substantiate the above reasoning.

Out of eleven consecutive cases treated by me at the Mercy Hospital Clinic and in private practice with intravenous diamindisulphoricinargentum (neo-vonargen), seven received no other treatment and returned to normal after three to six injections. In most cases the pain was relieved in from 3 to 24 hours.

One case treated for a right epididymitis which returned to normal came back five days after his last injection with a left epididymitis. He received three more injections of neo-vonargen and the condition returned to normal.

None of the patients injected with intravenous neo-vonargen had any reactions. The doses varied from 10cc of $\frac{1}{8}\%$ to 10cc of $\frac{1}{2}\%$. Better results were obtained with the stronger doses.

All patients who went through the course of treatment carried on with their regular duties and lost no time from their work.

Case No. 1.—C. W., aged 24 years. Gonorrheal infection for 2 weeks. Complained of pain and swelling of the right epididymis. Urethral smear was positive for gonococci. Examination revealed swollen and tender right epididymis. Diagnosis acute epididymitis. 10cc of $\frac{1}{4}\%$ neo-vonargen was given intravenously. Three injections were given at three day intervals.

Pain was relieved within five hours after first injection. Swelling diminished rapidly and after the third injection, condition had returned to normal.

Case No. 2.—J. C., aged 26 years. Gonorrheal infection for one month. Complained of swelling and pain in right epididymis of three days duration. Urethral smear positive for gonococci. Examination revealed swollen and tender right epididymis. Diagnosis acute epididymitis. 10cc of $\frac{1}{4}\%$ neo-vonargen was given intravenously. Four injections at three day intervals. Pain was relieved within twenty-four hours after first injection with marked reduction in swelling. After fourth injection condition returned to normal.

Case No. 3.—J. H. C., aged 19 years. Gonorrheal infection two months' duration. Complained of frequent urination and swelling of right epididymis. Urethral smear positive for gonococci. Examination revealed large tender prostate and swollen, tender right epididymis. Diagnosis acute prostatitis and epididymitis. 10cc of $\frac{1}{4}\%$ neo-vonargen was given. Six injections were given at three day intervals. Marked reduction in size of the prostate and epididymis after the second injection. Condition returned to normal after fourth injection, however, two additional injections were given.

Case No. 4.—B. G., aged 27 years. Gonorrheal infection for two months. Complained of pain and swelling of right epididymis of four days' duration. Urethral smear positive. Examination revealed swollen and tender epididymis. Diagnosis acute epididymitis. Patient was given intravenous injection of 10cc of $\frac{1}{8}\%$ neo-vonargen which seemed to have little or no effect. Two days later 10cc of $\frac{1}{4}\%$ was given after which relief from pain and diminution of swelling resulted. Four additional injections were given when patient's condition was normal.

Case No. 5.—L. T., aged 29 years. Repeated attacks of gonorrhea since he was 15 years old. Complained of swelling and pain of right epididymis. Urethral smear positive for gonococci. Examination revealed swollen and tender right epididymis. Diagnosis acute epididymitis. 10cc of $\frac{1}{4}\%$ neo-vonargen was given intravenously. Injection did no good and patient was given 10cc of milk intramuscularly. No further observation as patient did not return.

Case No. 6.—W. H., aged 22 years. Gonorrheal infection for 3 weeks. Complained of swelling and pain of right epididymis. Urethral smear positive for gonococci. Examination revealed swollen and tender epididymis. Diagnosis acute epididymitis. 10cc of $\frac{1}{2}\%$ neo-vonargen was given at intervals of three days. Relief from pain and reduction of swelling after the first injection. Condition returned to normal after the fourth injection. Five days after the last injection, patient developed a left epididymitis. He was given three more injections and condition returned to normal.

Case No. 7.—D. W., aged 21 years. Gonorrheal infection three months. Complained of pain and swelling of right epididymis of one week's duration. Urethral smear positive for gonococci. Examination revealed swollen and tender epididymis. Diagnosis acute epi-

dymitis. 10cc of $\frac{1}{4}\%$ injections of neo-vonargen were given intravenously every other day. On seventh day fluctuating point was noted. Abscess was opened—four more injections were given. Patient made an uneventful recovery.

Case No. 8.—W. S., aged 30 years. Gonorrheal infection for two months. Complained of pain and swelling of right epididymis of 4 days duration. Urethral smear positive for gonococci. Examination revealed swollen and tender right epididymis. Diagnosis acute epididymitis. Six injections of 10cc of Aolan was given at three day intervals. Showed no improvement. Entered hospital and epididymotomy was done and followed by hot applications. There was only slight improvement. Then 10cc of $\frac{1}{4}\%$ neo-vonargen was given intravenously on alternate days for 12 injections. After the third injection improvement was noted. After the sixth injection the epididymis was normal in size, except for a hard nodule at the lower pole of the epididymis. This condition disappeared after six more injections.

Case No. 9.—M. J. C., aged 29 years. Gonorrheal infection for one month. Complained of pain and swelling of right epididymis. Urethral smear positive for gonococci. Examination revealed swollen and tender epididymis. Diagnosis acute epididymitis. Was given 10cc of $\frac{1}{4}\%$ neo-vonargen. Five more injections were given every other day. Within 6 hours after first injection the pain subsided and after twenty-four hours there was a marked reduction in size of the epididymis. Condition normal at present.

Case No. 10.—W. W., aged 34 years. Gonorrheal infection four months. Complained of pain and swelling of left epididymis. Urethral smear positive for gonococci. Examination revealed swollen and tender left epididymis. Diagnosis acute epididymitis. 10cc of $\frac{1}{4}\%$ neo-vonargen injections given every other day. After first injection there was noticeable reduction in swelling and relief from pain. After five injections epididymis returned to normal.

Case No. 11.—H. M., aged 35 years. Standing posterior gonorrheal urethritis. Urethral smear positive for gonococci. Complained of pain and swelling of the epididymides. Examination revealed swollen and tender epididymides. Diagnosis acute bilateral epididymitis. 10cc of $\frac{1}{2}\%$ neo-vonargen given intravenously every other day for ten injections. After first injection pain subsided within eight hours and swelling diminished after the third injection. Epididymides returned to normal after seventh injection. Treatment also benefited to a great extent the prostatic gonorrheal involvement.

CONCLUSIONS

1. From the above reports we may conclude that neo-vonargen is an aid in the treatment of an epididymitis, as it relieves the pain in a short time and shortens the period of inactivity of the patient.

2. Neo-vonargen may be given intravenously

without any reaction or discomfiture to the patient.

3. The drug is quickly eliminated and its action is not cumulative in the dosage used.

4. The use of neo-vonargen is advantageous for the treatment of epididymitis, as the patient is not forced to suspend his activities during the time of treatment and his earning power is not impaired.

5. Neo-vonargen is a distinct advance in intravenous chemotherapy and should be a valuable addition to the armamentarium of the physician.

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THE ROLE OF VIOSTEROL IN PREGNANCY*

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The investigation which forms the basis of this paper was prompted by the advent of irradiated ergosterol, and was begun almost immediately after the introduction of that product in this country. During the months that the irradiated ergosterols were withdrawn from the American market, this study of their use in pregnancy was permitted to go on uninterruptedly through the courtesy of one of the manufacturers¹ who supplied an unlimited quantity for free dispensing to obstetrical patients.

The original idea was to study the effects of this new product on tetany of pregnancy with the hope of presenting to the profession, a new, more pleasant, and above all, a more effective remedial agent for combating that condition. With this in view, irradiated ergosterol, now

known as viosterol, was given only to those patients presenting symptoms or other manifestations of tetany. The results were so unexpected, so numerous and diverse, that the scope of this study was extended to other forms of obstetric disorders in an effort to expand our knowledge of the benefits attributable to ergosterol administration.

This problem at once resolved itself, not only into an investigation of viosterol, but into an examination of the entire realm of calcium metabolism,—its absorption, storage, distribution, and excretion, together with the extra demands placed upon that metabolism both by the pregnant and the lactating woman.

Only the outstanding observations will be presented in this paper. Some of the results reported herein are, to the writer, conclusive, others are as yet of a preliminary nature, but of sufficient import and promise to be worthy of mention both as a matter of therapeutic interest and as a source of further scientific investigation. It is needless to say that the value and physiologic importance of calcium metabolism extends far beyond the bounds of these few pages.

In pregnancy and lactation, we meet a rather marked calcium and phosphorus deficiency, which is fundamentally a relative situation, but of major significance clinically. This fact was established by a series of blood calcium and blood phosphorus estimations made during pregnancy, lactation and the puerperium. The results varied so slightly from the normal that they will not here be tabulated. Almost the entire series of calcium estimations were either low normal, or slightly under normal limits. The phosphorus results, while similar, presented a higher deficiency on a percentage basis. The lowest calcium estimation was 5.6 mg. per 100 c. c., while the vast majority were from 8 to 8.8 mg. per 100 c. c. with but two of 9 mg. or over and none of 10 mg. or more. The phosphorus estimations were all between 3.3 and 4 mg. per 100 c. c. These low or low normal estimates lead naturally to the first conclusion, namely, that while the values were satisfactory for a normal non-pregnant woman, the added burden of a rapidly growing fetus in utero, or infant at breast represented a sufficient demand on the maternal calcium-phosphorus mechanism as to produce a relative calcium-phosphorus defi-

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ciency, the degree of this deficiency being sufficient to bring about clinical manifestations of varying severity. The administration of viosterol increased the blood calcium to 9.5-10 mg. and in two instances respectively to 10.5 mg. and to 11.5 mg., the latter being in a nursing mother. The phosphorus values were increased as a rule to 4 mg.—4.5 mg. with a maximum of 5.5 mg. per 100 c. c.

Before proceeding to a discussion of the clinical entities arising from this calcium-phosphorus deficiency, it would be well, perhaps, to interpose briefly some data regarding calcium metabolism. There is no body tissue that is not influenced by, or has an influence, upon calcium metabolism, either in the composition, building, maintenance or function of that tissue. Calcium makes up about 1.3% of all body tissues, and crowns its glory in the bony skeleton, where it comprises about 85% of the structure. Phosphorus on the other hand constitutes about 1.15% of the body tissues. Calcium is part and parcel of blood, muscle and bone; it is essential to growth, to normal action of the heart and skeletal muscle and to the coagulation of blood.

Calcium metabolism primarily involves three factors:

1. *The supply*, necessarily dietary, which may be deficient or be represented by calcium in a form impossible for the body to absorb and assimilate.

2. *Absorption*—with its attendant assimilation and deposition.

3. *Utilization*—by withdrawal, distribution, dissipation and excretion.

The first of these factors, though readily controlled is frequently at fault in the form of an improperly balanced diet. Calcium is readily supplied by milk, vegetables, and of late by Sun-Wheat cookies.

The second of these factors is also easily controlled, but its physiology is not so uniformly agreed upon by all authorities. There is, in the skin, an ergosterol² or closely allied sterol which depends for its efficacy, upon irradiation, either by natural or artificial sunlight. At this point, I am inclined to take exception to the belief of Blunt and Cowan³ of the University of Chicago, that cod liver oil and ergosterol probably exert their effect on calcium metabolism by stimulating the parathyroid function, the absorption of calcium and phosphorus being definitely promoted by parathyroid activity. To support their

theory these writers cite the experiment of Hess, in which a monkey on low calcium diet was fed large quantities of irradiated ergosterol which promptly raised the blood calcium to normal. After parathyroid removal with the attendant fall in blood calcium, the blood calcium could not again be raised by any amount of ergosterol.

The observations on which the present paper is based would indicate that irradiated ergosterol actually increases⁴ the absorption⁵ of calcium and phosphorus from the gastro-intestinal tract and that if a need for calcium exists, an increased deposition of calcium⁶ takes place in the spongiosa of the bones, the storehouse⁷ for available calcium. This theory is concurred in, by W. Bauer and A. Marble⁸ as well as by Hess,⁴ whose monkey experiment is either misused or mis-interpreted. Irradiated ergosterol apparently is not stored in the body, nor does it stimulate parathyroid activity. Its only function is to aid in the absorption of calcium and phosphorus by the gastro-intestinal tract, in a form capable of assimilation and deposition in the bone. Herein probably lies the only too frequent failure of the ultra-violet rays; there being uniformly a deficiency in ergosterol or calcium metabolizer. Without this metabolizer present in proper quantity in the skin, the actual or artificial sun-rays must fail, and ergosterol be supplied by mouth in an irradiated, or activated form.

The third factor in calcium metabolism has to do with the parathyroid functions⁹ of withdrawing calcium from the spongiosa of the bones,⁶ for utilization by the blood and tissues. The utilized calcium, is not returned to the bone, as it would be if the parathyroids controlled deposition, but on the contrary it is given up after utilization and excreted through the kidneys and intestinal tract.

We have therefore, two sources of increased blood calcium, first absorption aided by ergosterol, and secondly withdrawal of calcium from the bony storehouse with a sequential distribution and excretion.

In pregnancy, we have an extra demand on these factors in calcium phosphorus metabolism, for the building and maintenance of the growing fetus and in consequence a relative maternal calcium deficiency, which is prolonged into the puerperium by a withdrawal of maternal calcium

which is given over to the newborn through the breast⁹ milk.¹⁰

In support of these theories on calcium metabolism one might offer the following well established data:

1. High calcium diet, cod-liver oil, irradiated ergosterol, and calcium results in calcium deposit in the spongiosa of the bone in rickets and osteomalacia.

2. Parathyroid is contraindicated⁸ in tetany of rickets and tetany of osteomalacia since the increase of calcium, which is curative in tetany, is brought about through further removal of calcium from already depleted bone. If parathyroid played a part in the absorption of calcium from the gastro-intestinal tract such a deprivation would not occur.

Turning now to the clinical consideration, it is interesting to note the marked diversity of symptoms encountered, and the varying degrees of reaction in different women.

The most common *symptom syndrome* is that of tetany, and not merely a tetanoid state, as reported by Hartley.¹¹ Tetany is identified almost universally by the pediatricists,¹² as a consequence of parathyroid deficiency and then, in discussing the etiology, they contradict themselves by saying it is more common in artificially fed, than in breast fed infants, and, that children born of mothers who have suffered tetany of pregnancy are especially prone to tetany. Why then should we lay the blame of tetany on the poor parathyroids, when its primary cause is a calcium deficiency, which, in turn, is due to a deficient calcium intake or absorption. Tetany is most frequently encountered as a sequence of rickets or osteomalacia, occasionally as a pure entity in itself. Rickets and osteomalacia are both calcium deficiency diseases. It follows, then, that tetany is merely the logical outcome of both, since the parathyroids are depending upon depleted bone, a depleted, empty, warehouse, from which to draw an insufficient quantity of calcium to meet the demands of the body tissues and functions. The parathyroids need neither be diseased nor deficient to explain adequately the reasons for tetany, either in infancy or pregnancy. The lack of calcium permits of intoxication by poisons produced within the body, which are normally neutralized by calcium. Chief among these is guanidin^{13, 14} which is capable of producing a tetany identical with the tetany after parathyroidectomy.

Williams¹⁵ and others in recent texts recognize the occurrence of tetany in pregnancy, and

consider it to be a true tetany. They do not however, sufficiently evaluate the importance of this disease, for the percentage incidence cited is far too small. Stevens¹⁶ in his "*Practice of Medicine*" tells us that, untreated, 7% of the tetanies of pregnancy die of tetany.

Our investigation upon the use of viosterol in pregnancy would indicate, conservatively, that fully 75% of all pregnant women suffer from tetany to some degree, however slight. The basis for this statement is the fact that one of the earliest and most important symptoms is overlooked in obstetrics. That symptom is cachexia,^{12, 15} and it is often missed on account of the preponderance of nervous phenomena so common to this disease. Accompanying the cachexia and resulting from it, is a general muscular weakness, which in itself is a very frequent complaint among pregnant women. This muscular weakness,¹⁷ in turn, accounts largely for the exhaustion which so readily follows slight exertion.

The outstanding symptom of tetany in pregnancy is muscular contracture, especially of the lower extremities, and involving, as a rule, the gastrocnemius, soleus, and flexor hallucis longus muscles. Other groups are occasionally involved but far less frequently. This symptom most often comes on during the night, toward waking hours. Severe pain arouses the patient from her sleep. The pain and the contracture may persist from a few minutes to an hour or more. This manifestation is pathognomonic of tetany and by the general practitioner is only too frequently explained to the patient as being due to pressure on the deep nerves of the pelvis.

The Trousseau, Chvostek, and Erbs phenomena occur, but so infrequently as to be of small diagnostic value.

Other diagnostic signs appear which are attributed to the tetany only too rarely. Among them we note puffiness of the face, hands and fingers, tingling or numbness of the fingers or extremities, localized swelling of the limbs, pallor, thinning and loss of hair, frequent occurrence of dental caries, increased brittleness of teeth, and thinning of the nails as well as brittleness. Tachycardia is almost always seen and in extreme cases there may be convulsions and coma.

The diagnosis of tetany of pregnancy may be positively made upon complaint of muscle contractures, but it should be suspected earlier, and

treatment instituted with the cachexia which often begins in the very early months.

The treatment is to supply the necessary calcium, and this is most readily accomplished by the administration of viosterol (irradiated ergosterol) in adequate dosage. Properly administered viosterol is specific for tetany, and clinical relief is accomplished in 48 hours. The dosage is variable, twenty drops three times a day, being the average, and while more may be required, less will frequently suffice.

Probably second in importance among the clinical entities associated with calcium-viosterol metabolism are pre-eclampsia toxemias and eclampsia. These are given a subordinate place because of their present rarity as contrasted with the extreme frequency of tetany. Because of this rarity it has not been possible to make this phase of viosterol investigation as complete and conclusive as that of tetany. However, some extremely interesting associations have been observed. The most important and the one which extended this study to include the eclamptic states, was the fact that certain rises of blood pressure, even up to 150 and 160 systolic, were not only lowered, but in many instances were reduced to normal by the use of viosterol.

Calcium has been employed for years by many internists in treating hypertension but only lately has it been possible to secure the advantages offered by viosterol.

In the study of eclampsia there have been primarily, two schools, namely those bent on attributing its cause entirely to a blood sugar deficiency^{18, 22} and those who believe it to follow a calcium deficiency.^{19, 20} This latter group of investigators is further divided into the exponents of calcium only, and to others who explain the calcium deficiency on a basis of parathyroid deficiency.²¹ Both schools are seemingly correct in their laboratory observations but fall short in clinical application. The reason for this shortcoming, probably lies in the fact that both the calcium and carbohydrate metabolism are, to some degree at least, interdependent.²⁰ In this study the weight of the clinical evidence favors the calcium deficiency as the primary factor, and the disturbed carbohydrate metabolism²⁰ as secondary and apparently due to the calcium unbalance. In support of this statement one must consider here the toxic agent responsible for

eclamptic convulsions. This agent, guanidine,^{14, 23} is a waste product of voluntary muscle action, which, under normal conditions, is neutralized by calcium.

Guanidine,²⁴ according to many investigators, is not only responsible for eclamptic convulsions, but is the toxic factor in producing the convulsions of tetany, osteomalacia, uremia and of liver necrosis. Uremia, liver necrosis and eclampsia have long been correlated, but now tetany and osteomalacia have been added for the purpose of strengthening the contention that calcium is an important causative factor in eclampsia.

With a deficiency of blood calcium, the guanidine produced by the body musculature would not be neutralized and the voluntary muscles are rendered thereby more irritable through this poverty of calcium. Tetany might be mentioned in this connection as a first phase in that muscle irritability, and it is interesting to note, that all of the eclampsia and pre-eclampsias in this study were preceded by tetany of a violent nature. This does not mean that all cases of tetany are forerunners of eclampsia, but it was noticeable that all severe tetanies did eventuate in varying rises of blood pressure and that with the control of the tetany by viosterol, these blood pressures returned to normal.

The guanidines are toxic both to muscle and to the liver, and, if not checked, are capable of producing a necrosis of that organ. Herein is the main link in connecting the calcium and carbohydrate metabolism. A toxic liver must be necessary interfere with carbohydrate metabolism and thereby the dextrose²⁵ delivered through the blood to the muscle for conversion to glycogen is interfered with. By depriving muscle of glycogen, its stored up glycogen is depleted, and lactic acid,¹⁰ CO₂ and protein wastes are proportionately increased. Lactic acid is also developed by muscle action, and therefore ought to be rather markedly increased by eclamptic convulsions, especially since the available dextrose and glycogen are so diminished. This excess of lactic acid is taken into account in the relatively recent work of Stander, Eastman and Harrison²⁶ when they reported the changes in PH values during eclamptic convulsions. This excess also will account for a diminution in blood sugar¹⁸ before the convulsions and the subsequent rise, since much of the glycogen broken down by

muscle activity is recovered as blood sugar after a return of the muscle to rest.²⁵

This theory of eclampsia, combining as it does, all of the modern hypotheses, will also explain the basis for both past and present methods of treatment of eclampsia. The withdrawal of protein from the diet would lessen the creatin and guanidine waste in muscle tissue, or at least it would not contribute to the burden, while the imposition of a milk diet would supply calcium to combat the toxic devastations of the guanidine. The more recent administration of parathormone²¹ meets the calcium deficiency by drawing upon the bony skeleton, but falls short in not providing for either an increased calcium absorption, or increased carbohydrate intake. The recent use of glucose^{14, 27} intravenously provides only for the muscle-glycogen deficiency but it is quite effective on the one hand in partially restoring the muscle protein carbohydrate balance, although it furnishes no calcium with which to combat the guanidine waste.

In cases here included, the above methods of treatment have all been employed either alone or combined. In early rises of blood pressure with and without albuminuria viosterol has sometimes sufficed to cause a return to normal without other aids. A calcium rich diet however is imperative for success. Milk or milk and vegetable diets have sufficed in cases not too advanced. Parathormone alone has not seemed adequate, although excellent and even startling results have been reported in literature. For the present at least it would seem rather hazardous to depend entirely upon this remedy. Calcium and glucose in the form of calcium gluconate intravenously has in this series produced the most prompt reduction in blood pressure, a fall of twenty mm. in systolic pressure having been observed within two hours after the first dose. Two cases of pre-eclampsia with blood pressures of 150 and 160 with two plus albuminuria, and moderate visual and nervous symptoms became albumin free and showed complete symptomatic recovery in 3 to 5 days with administration of parathormone intramuscularly, together with viosterol and calcium gluconate by mouth. These patients were dieted also as an added precaution, but their response was too prompt and permanent to be regarded as the result of the dietary measures. After clinical recovery, these

cases went through the remaining two and three months of their pregnancies uneventfully.

No doubt, much must be done in the investigation and treatment of eclampsia, but these findings are offered with the hope that others will study eclampsia along these or related lines.

A third observation in viosterol therapy in pregnancy was the surprising change which an improved calcium metabolism produced on the friable or "wet-blotting paper" perineum as well as the frequency with which the progress of varicosities was arrested. The effects would seem to indicate a common origin for these pathologies.

To substantiate the beneficial conditions which the treatment brought about in the perineum two cases are here summarized.

Mrs. C., para I, was delivered spontaneously with episiotomy, and an immediate repair. The operator was competent and experienced but before discharge from the hospital the wound opened to its full depth. A good general surgeon performed a secondary perineorrhaphy in the ensuing year. The result was poor, with the formation of a vagino-perineal fistula, opening in the raphe externally. As a para II, Mrs. C. had tetany throughout the pregnancy. Calcium lactate failed to provide relief. Calcium chloride in massive doses improved the tetany after ten days but failed to cure under three weeks' administration. Forceps were necessary in the delivery on account of a very profuse hemorrhage arising from a beginning laceration of a firm band of scar tissue in the perineum, which had been incised to aid delivery. The fistulous tract was excised and immediate repair performed. Owing to the friability of the perineum the sutures cut through the tissue and the repair was of necessity loose. The fistula again formed, this time through a thinner portion of the perineum. Hemorrhage at delivery was moderate from perineum and uterus. As a para III, Mrs. C. again suffered an even more marked tetany which was again treated with calcium chloride and this time also with only partial success. At delivery hemorrhage was profuse both from uterus and perineum. Delivery was spontaneous with episiotomy. The perineum again was very friable, but this time the fistula was almost entirely obliterated. In the fourth pregnancy tetany was more marked than at any previous time. Viosterol was prescribed with complete relief in thirty-six hours, and its administration was accompanied by a greater sense of strength and well being. Viosterol was continued throughout the pregnancy and into the period of lactation. Delivery was spontaneous, with episiotomy. The perineal bleeding was scant. Uterine bleeding was limited entirely to retroplacental clot, with no flow of blood either preceding or following delivery of the placenta, and the pad was not so much as spotted by uterine blood. The perineum was found to be in an excellent condition and the sutures could

be drawn up to their usual tautness without cutting through. Healing was by primary intention and the sinus was completely obliterated. At six weeks, the perineum was excellent.

Mrs. S. was delivered as a primipara at age 33. During gestation tetany was marked, but was moderately well controlled by calcium chloride by mouth. The labor was sluggish and required mid-forceps delivery with episiotomy and Dührssen incisions on account of a posterior rotation of the occiput, and an edematous rigid cervix which failed to dilate. The medio-lateral episiotomy was accompanied by such profuse hemorrhage that ligation and suturing were necessary before it was thought safe to proceed. On incising the cervix, hemorrhage was again so profuse that the compression forceps had to be left in place while a manual rotation was performed and the forceps were applied to the head. On removal of the long hemostat from the cervix hemorrhage again set in but was controlled by the pressure of the head. Cervix and perineum were repaired by catgut. Both were friable and the sutures had to be placed in loosely to avoid their tearing out. Uterine hemorrhage was rather profuse but was controlled by usual methods. Progress was then uneventful until the tenth day when the patient was permitted up in a chair. Upon standing, a pronounced hemorrhage occurred, and was controlled by uterine massage followed by pituitrin and ergot. Lochia rubra was of unusual duration and abundance. At six weeks, the perineum was relaxed due to poor union. The menstrual periods, upon their return, were exceptionally copious and accompanied by faintness and general weakness. Ergot and hemostatic agents were necessary with each menstruation. At age 36, Mrs. S. again became pregnant. Severe and debilitating tetany began at two months. Viosterol was ordered and continued throughout gestation. The tetany was promptly and permanently relieved. Labor was active and rapidly progressive in spite of a recurrence of the occipito-posterior presentation. Dilatation was normal. Episiotomy was performed with only the customary blood loss. Uterine bleeding was scant. The perineum instead of being friable was normal and catgut repair was performed with the usual tension on sutures. Healing was by primary intention. The lochia was normal. There was no late hemorrhage. Viosterol was continued into the lactation period and until menstruation was re-established. At six weeks, the perineum was in excellent condition. The menses returned with only a normal blood loss, which for this patient at 36 years, was the least she had experienced throughout her entire reproductive period.

Both of these cases had more or less generalized varicosities, the varices being more marked in the limbs, vulvar and perineal regions. After the administration of viosterol the varicose processes were almost completely arrested and the recession of the varices following the administration of viosterol was decidedly greater than after any previous delivery. This arrest of prog-

ress in varicose vein formation has been observed in numerous cases and would seem in some instances at least definitely to associate the friable perineum and varicosities with a calcium deficiency.

The fourth factor of clinical importance, observed was the marked influence of viosterol upon post partum bleeding, and the coagulability of the blood.²⁸ In the entire series of cases, there was but one which presented more than a normal blood loss, and in this one case the bleeding did not reach an alarming degree, but on the contrary, was largely prevented from so doing by the noticeable increase in coagulability. This particular case, was a para III with a congenital heart, in whom the general circulation was poor, uterine contractility was deficient, probably on a circulatory basis, and the bleeding was evidently from open sinuses. The usual thing with viosterol administration is the very evident diminution in hemorrhage at delivery and post partum, and the marked rapidity with which the blood clots. Time and again the blood is seen to clot as it comes into view, or clots are expressed from the parturient canal. The instances are numerous in which no flow of blood reaches the pad beneath the patient's hips. Where bleeding is sufficient for the blood flow to reach the linen under the patient, clotting occurs with such rapidity that the coagulum may be continuous from cervix to the vulva. The annoyance of the blood flow over the field of the episiotomy repair is greatly reduced by the shortened clotting time, and perineal healing is improved, in part by the decreased likelihood of blood inclusion and in part by the improved vitality of the tissues themselves.

Fifth among these factors is the improved condition of the teeth after viosterol administration, and in this regard, the importance of continuing the viosterol into the lactation period should be stressed, as the nursing infant extends the active calcium depletion beyond the termination of the pregnancy. During pregnancy and lactation, the calcium demands of the infant are manifested by an actual and appreciable withdrawal of calcium from the bony skeleton and from the teeth. This lime-loss by the teeth is evidenced by chipping of the teeth, and by the incidence of dental caries^{3, 29, 30} during the gestation and the nursing period. Viosterol in presence of an adequate calcium dietary not only

improves the teeth but absolutely and completely arrests dental caries,²⁹ and this in so brief a period as two weeks when adequate dosage is employed. Patients under dental observation and experiencing the formation of tooth cavities at the rate of one or more as often as each week, report the arrest of existing cavities and carious processes²⁹ and a complete cessation of new cavity formation. Dental prophylaxis is less frequently required. Dentists requested to check up on these observations report an increased hardness²⁹ in the carious surfaces after viosterol. This hardness represents a recalcification²⁹ of the decalcified dentin. In carious processes active before viosterol, the activity was seen to cease after viosterol administration. This definite improvement in the condition of the teeth, is accomplished with adequate amount of irradiated ergosterol in such short periods as 10 days to two weeks, but where patients discontinue viosterol after delivery it is usually found necessary to institute treatment again during and often throughout lactation.

These findings are concurred in by Edward Mellanby, May Mellanby, J. D. Boyd, C. L. Drain and other observers, some of whom have extended their investigations to a microscopic study of the teeth, and the facts lead us to the conclusion that vitamin D is the sole factor controlling the quality of dentin produced.

Another difference observed or reported by the patients was a sense of greater strength and well being when taking viosterol. Patients frequently reported feeling less strong and complained of tiring more readily even within the brief period of 48 to 72 hours after discontinuing viosterol. In the cases observed, the labors were more active and the patients more relaxed so that dilatation progressed more satisfactorily whereby the labor was shortened, and the degree of exhaustion diminished. After the viosterol was discontinued many women either suggested or requested, that it be allowed during the puerperium and nursing period. A number of patients voluntarily reported that unexplainable swellings of the ankles had disappeared under viosterol therapy, only to reappear on discontinuing the medication, and left again, on again resuming the treatment. One case of psoriasis in a parturient on Dr. Charles B. Reed's Service at Wesley Memorial Hospital, was treated with viosterol and heavy

calcium diet during the early puerperium. Improvement was surprisingly prompt and desquamation rapid. After discharge, the patient failed to report back for observation, so the ultimate result was not determined. There were no sepsis cases. One patient had a phlebitis in the second month which became quiescent after starting viosterol and re-occurred after dropping it.

In undertaking this study considerable opposition was encountered from the pediatricians who threw up their hands with the warning that dystocias would be produced as a result of intrauterine ossification of sutures in the babies, and that these babies would therefore suffer cerebral hemorrhage due to that dystocia. Some warned against calcium deposits in lungs, liver, arteries, kidneys and other organs. Owing to these warnings all of the newborn were carefully examined. Of all the mothers delivered during this study 75% of the private patients received viosterol. Only one of these babies had united sutures while two born of mothers not taking viosterol had united sutures. Among the viosterol cases no baby had cerebral hemorrhage, while two other babies did have cerebral hemorrhage, one a fatal hemorrhage after a very easy low forceps delivery. The hemorrhage occurred on the fifth day and terminated fatally on the same day. No external evidences of rickets were observed; roentgenograms were not taken. No baby presented symptoms of hypercalcemia. All were vigorous, and none had atelectasis. One outstanding feature was uniformly present, namely a decreased coagulation time, which of course would be obviously beneficial in any potential cerebral hemorrhage case, or in hemorrhagic diathesis. All of the male babies were circumcised. It was in these circumcisions that attention was first attracted to the rapidity of coagulation of the blood. The number of instances in which the blood would clot even before it could flow or drip from the glans penis was almost incredible. In no single case was bleeding profuse, but on the contrary, on cutting large vessels, the blood would well up, completely circumscribing the glans, then clot instantly. In no case was there any secondary bleeding. The intrauterine postural bowing of the legs disappears in about one-fourth to one-half of the usual time.

The placentae were of a peculiarly healthy color and consistence, calcereous deposits being

conspicuous by their infrequency or total absence.

Before concluding, some expression of the dosage should be made in this report on the role of viosterol in pregnancy. Beginning as it did, with the very advent of viosterol on the market, even antedating the council acceptance of the name, these observations constitute the pioneer investigation of the subject. Ergosterol was given during gestation prior to this study, but only for its effect on infantile rickets, never to determine what, if any, effect it might have on the maternal organism. The doses recommended for prevention of infantile rickets were much too small to produce results in both mother and baby or either in most instances. Today probably many physicians are using viosterol not only for its fetal benefits, but for maternal as well. The doses in general are much too small, but the quantity cannot even with our present knowledge be a fixed amount. Ergosterol is a normal constituent of the skin. In some it is present in normal amounts, in others deficient, so that we have ergosterol deficiencies just as we have thyroid deficiencies in certain individuals. In those having an abundance of ergosterol that substance requires activation by the sun ray. Persons having a normal amount of ergosterol properly activated need nothing more, nor do they present evidences of any deficiency. Those having a normal ergosterol content but not sufficiently activated respond to light therapy or to viosterol administered by mouth, while persons having insufficient skin ergosterol represent the vast number of well known failures in light therapy and must receive, by mouth, sufficient viosterol to elevate their calcium absorption to normal. The plan finally established by this study was to give all cases presenting a calcium deficiency syndrome twenty drops of 250 D viosterol three times daily. In event of failure this was increased to a thirty drop dose. After clinical response was complete as evidenced by disappearance of symptoms, the dose was diminished to fifteen drops, and if possible later to ten drops, the idea being to establish the therapeutic requirements for each individual and carry each patient on a dose which would maintain her symptom free. The only prerequisite to success is that the patient must have a diet adequate in calcium. Where the diet seemed deficient, the viosterol therapy was supplemented by increas-

ing the milk, prescribing sun-wheat cookies or by prescribing calcium, usually in the form of calcium gluconate, which seems to be the most pleasant and readily absorbed form of calcium. Where the calcium need is urgent, calcium gluconate may be given intravenously.

In summarizing, the conclusions involve, calcium metabolism, and both maternal and fetal considerations.

I. CALCIUM METABOLISM

A. *Ergosterol* is a normal constituent of the skin.

1. It may be abundant or deficient, active or inactive.

2. Ergosterol promotes calcium and phosphorus absorption.

B. Calcium usually adequate in the diet may be deficient on account of improper food.

II. MATERNAL CONDITIONS (with proper calcium dietary)

A. Calcium deficiency may be actual or relative but is common in pregnancy.

B. *Ergosterol* (viosterol).

1. Alleviates Tetany of pregnancy.

2. Is definitely related to certain hypertensions, eclampsia, uremia, and liver toxemias, through their connection with calcium metabolism.

3. Has a favorable influence on friable perineum and varicosities and apparently shows that these conditions are associated closely with calcium metabolism.

4. Is definite asset in prevention of postpartum hemorrhage, and reduces coagulation time.

5. Inhibits and arrests dental caries.

6. Promotes general strength and well being.

7. Is valuable adjunct in treating Psoriasis.

III. FETAL CONDITIONS

A. Does not contribute to dystocia, or cerebral hemorrhage, nor cause intrauterine ossification of sutures or closure of fontanels.

B. Averts Rachitis neonatorum.

C. Improves clotting time in newborn.

D. Improves vitality of newborn.

DISCUSSION

Dr. James T. Gregory, Chicago: Yesterday in this Section we listened to a paper on the role of prophylaxis in pregnancy. The work Dr. Richardson has just presented to us was not even mentioned in that paper, because this work has not yet been published and has not been given to the medical profession. The Department of Obstetrics at Wesley Memorial Hospital has been so impressed with the results that Dr. Richardson is getting that they rather insisted that he be placed on the program so that his excellent work might be presented to the State Society.

This work is original with Dr. Richardson, and we were very glad to have him on the program and have the paper published in the JOURNAL. Dr. Reed is here,

and I am sure he will wish to comment on Dr. Richardson's work.

Dr. Charles B. Reed, Chicago: Dr. Richardson has called attention to the calcium deficiency problem in obstetrics most strikingly. His work will revolutionize our whole program of prenatal care. This study gives us for the first time an insight into the control of cramps or tetany in its various forms. We learn also much about prenatal care of the perineum, the prevention of impetigo in the congenital and postpartum cases, which appeared first in 1917 following the deprivation of lime and vitamins in the wartime diets.

We learn too some things about hemorrhage which we have known before but have not regularly applied.

Menstrual cramps, the care of the teeth and certain skin diseases all have enlightenment through the studies which Dr. Richardson has so competently and painstakingly carried out.

The paper is most instructive and marks a decided advance in perinatal care and the consequences for the subsequent labor.

Dr. Garwood C. Richardson, Chicago: I might say a word with reference to the action of tetany. The muscles contract in the posterior group of leg muscles; these cramps appear at night and more especially near the waking hour. Sometimes they extend into the daytime, so that in extreme cases you may have tetany any time within the twenty-four hours.

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A RUSH CALL FOR CREATION OF COOPERATIVE CLINICS*

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Born in hard labor, raised on many sleepless nights and growing nicely, the physician's most cherished child—his practice—lately was not thriving so well; in fact, it began vanishing with marked signs of malnutrition due to inertia and lack of foresight of the shy and reticent father who looked complacently upon the situation until finally he became apprehensive and showed keen concern when the danger of premature death of his child became alarming. Many consultations were launched and the problem was attacked from different angles; a variety of remedies for unemployment have been proposed and the pressure for relief projects has bred a litter of plans, good and bad. The formation of

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the Committee on the Cost of Medical Care by the American Medical Association was an indication that an imperative need of a careful scrutiny of the entire situation was felt throughout the country.

Only an unobservant and unperceptive individual can not see that while a voluminous discussion is taking place, the circle of disturbances is getting constantly wider. The practice of an individual physician is tottering on the brink facing disaster. The etiology of this epidemic is rather complex. In attempting to analyze the medley of causes we can divide the chaos of sundry reasons into the following groups.

A. General economic depression, making the problem of cost of medical care more acute and causing a growing resentment on the part of the public towards employment of private physicians. The spark of dissatisfaction was fanned to white heat by a mercenary press with its grossly incompetent and unscrupulous journalists who resorted to their old sovereign remedy of sensational misrepresentation and created fallacious impressions without weighing evidence and judging fairly. It became a fad with them to take a daily dip in a sea of words contributing to a calumny against the medical profession and clogging the wheels of development of individual practice. Their utterances are more notable for their pathos, fire and dash than common sense as the statistical investigation¹ shows that the physician's fees amount to only twenty-five per cent. of the entire cost of medical care; a compilation of smart phrases and rhetorical discussions cover abysmal ignorance of underlying conditions. Every magazine and daily paper in the country, lamentably ignorant of the intrinsic causes of high cost of medical care, bristles with well-phrased belligerent articles on medical economics, deftly placing the responsibility for all the evils at the door of the physician and molding the attitude of the public towards him; some magazines went even so far as to make an onslaught upon the spiritual citadel of the medical profession. The uproar rises higher and hotter; shrill and harsh notes have been added to its already ample register of discords. While the campaign against the private physician grows fiercer and fiercer the profession finds itself definitely on the defensive. The time has come for a more aggressive attitude on the part of the

fraternity, an attitude that will not subject it to the criticism of inactivity and reticence. A discussion illuminated by mature reflection and free of hypocrisy should point out that physicians are not beasts in human guise and do not think only of enriching their coffers but that their hearts throb with sympathy for the distressed. The army of journalists should be shown that the fusilade was made in a wrong direction because the physician is perfectly willing to do his share in solving the problem. The statement that it is expensive to be sick can not be summarily brushed aside. Oscar Wilde replied to his friends who wanted to summon a famous physician: "I do not wish to die beyond my means." Paraphrasing this sentence we should create a situation whereby everybody should be entitled to say: "I do not wish to be sick beyond my means" and could fulfill his wishes. It is hoped that the plan outlined below will contribute to reduction of the fees and alleviate the burden of costs of medical care in general.

B. The forerunners of state medicine in form of medical centers organized and controlled by industrial concerns, insurance companies, municipal health departments and various philanthropic agencies form the second important factor, entirely independent from the financial depression. The first seed of state medicine has been planted recently in form of Jones-Cooper maternity bill passed by the Senate and extending the province of the federal government into the field of medicine. Soon the government will have its hands in everything from cradle to the grave, from infant welfare stations to old people's homes. Lenient social service departments of countless charitable institutions serve moral opium to classes of population which can well afford to engage a private physician but form a caravan in pilgrimage to dispensaries. A close inspection of the policies of such institutions shows that they are subscribing to the doctrine "get what you can" by offering tonsillectomies at bargain counters, charging various fees for physiotherapy treatments, etc. New welfare organizations are being born daily as illegitimate children of a misled philanthropist and a social lioness. The father of course pays alimony in form of contributions and endowments and the press is always ready to chant a hymn of praise to his benevolence. The lady between bridge

parties and appointments with her dressmaker manifests considerable interest in the doctrine of dispensing charity at physicians' expense. Gallant reporters are burning incense to such a mother whose heart overflows with the milk of human kindness. As a result of the activities of these Good Samaritans the dispensaries form a veritable Mecca not only for paupers but for a class of population which would object to be called indigent.

Physicians accept positions in such institutions where provisions are made for everybody from scrubwomen to the superintendent except doctors for three reasons: 1. experience due to a large material; 2. prestige; 3. hope to derive indirect financial benefits. The ball was set rolling by the very hands which now make an empty show of trying to block its path. All illusory plans to eliminate the conflict burst like soap bubbles at close investigation. The only efficient way to cut the supply of free medical labor to such institutions is diverting it into other channels. When the doctors will be shown that they can enjoy the advantages of being connected with a clinic in their own cooperative institutions they will not be so eager to accept honorary positions in charitable organizations and play the rôle of satellites revolving in an orbit about the sun of Charity.

C. Pay clinics supported by teaching institutions or conducted by independent hospitals form another anathema of the practice of a private physician. It is a grotesque travesty that pseudo-philanthropists support clinics which pauperize such an important class of population as the medical fraternity. Such organizations can not pretend that they seek only teaching material as there is an inexhaustible source to be drawn from the free dispensaries. Under the smoke screen of public service these clinics encroach upon the practice of a private physician for mercenary motives disregarding the fact that owing to heavy endowments they usually do not experience any financial difficulties. Reared in the atmosphere of protest against high cost of medical care a well to do class patronizes such organizations which deserve the name "Pauperization Clinics" instead of "Pay Clinics."

The question has resolved itself into a virtual tug-of-war; the fight between such institutions and individual physicians resembles a fight be-

tween a giant and a pygmy; it is evident that the lilliput is fighting a losing battle. Here again the only hope to combat the usurpation of the practice by the pay clinics is to fight the antagonists with their own weapon, i. e., to establish rival cooperative, well equipped and well conducted clinics *owned by physicians*.

D. Self medication of proprietary medicines also made a dent in the medical practice. Here the fault lies nearly exclusively with physicians who instead of prescribing U. S. P. and N. N. F. preparations use patent medicines and thus create a Nemesis for themselves. Dispensing of drugs in the clinics will eliminate to a great extent this dangerous habit.

Space considerations forbid further discussion of the long litany of causes of the cataclysm but this short kaleidoscopic review, although not exhaustive, shows that there are numerous causes which wrought havoc to the medical practice; we are now only at the dawn of a new era and on the threshold of great events and must adjust ourselves to the new configuration of life. The existing conditions are unbearable and status quo can no longer be preserved. The profession realizes now what a menace it allowed to develop, even encouraged, in its hours of careless ease; now it is utterly at sea as to what should be done; the monster is too big to be crushed; the longer the gale lasts the more clearly looms through the fog of discouraged bewilderment the fact that no one can fight the problem single handed. The medical profession was traveling on the road towards socialization without noticing the danger signals but now it suddenly discovers that drastic measures became imperative in order to alleviate the economic distress of thousands of physicians and to correct the derangement which affected the medical fraternity throughout the country. There may be truth in the old Latin saying that "*plenus venter non studet libenter*" but on the other hand, we doubt very much whether an empty stomach increases the mental capacity and the resulting quality of service of a physician. Undoubtedly the great demands on the nervous system incident to the struggle for livelihood, the mental stress and strain do not have a beneficial influence upon the effectiveness of the medical service. The chief stumbling block in the path of emergency service for individual

practice is the lack of joint activity. The gospel of cooperation and organization should be spread among the medical fraternity as rapidly and vigorously as possible.

The following plan is submitted not as a cure-all but as an attempt to accomplish something concrete in the direction of co-operation in a determined manner.

The advantages of a cooperative pay clinic for both patients and physicians have been discussed in detail elsewhere² and only a short resumé shall be given here summarizing the salient points.

Groups create material and spiritual links and promote good will and understanding among physicians. The success of the existing pay clinics in various parts of the country vividly illustrates the soundness of the system. The patient patronizing such a clinic benefits by receiving service of well trained physicians with large experience and having all the modern laboratory facilities at their disposal; the fees and also charges for drugs can be considerably reduced. The physician benefits by gaining experience, having opportunities for specialization and all the facilities for a complete scientific examination at his disposal; economic advantages in form of smaller overhead expense; possibility of taking a postgraduate course or vacation without financial losses, etc. The matter of economic security, however, while fundamental, is not half so vital to the physician as the appreciation of the fact that he is given the opportunity to work in a thoroughly scientific manner and render services to his patients at a cost which is not a burden to the sufferer.

As to the question of organization of such clinics, it is the writer's opinion that the local medical societies should be prevailed upon to arrange a popular referendum in order to elucidate the problem. Anticipating from the opinions gathered in numerous conversations with physicians the overwhelming majority probably will be in favor of pay clinics. If it shall be found in the open forum that it is a wish of a great number of physicians to create such clinics it should be the duty of the medical societies or their respective branches to nominate committees invested with the duty to work out suitable plans. Such plans involve responsibilities, risk and a lavish expenditure of ingenuity and re-

sourcefulness; therefore, the committees should consist of members who are well acquainted with the local needs of the community; hence they should embody not only brilliant brains but also hungry stomachs; those who are only academically concerned with the subject may have no intimate knowledge of local conditions which are extremely important. Not only eminent specialists but their "poor relations"—the general practitioners should play an important rôle in such committees; in other words, not the elite but the rank and file of the profession should be consulted. A plan of establishing cooperative pay clinics can be nation-wide in scope and adjustable according to local requirements. Alert experts should be employed who would secure facts and figures and prepare specifications along the following lines:

1. Economic considerations; recommendation of strategic locations; a survey of the economic status of the population; distribution of nationalities; transportation; layouts; approximate cost of rent and upkeep; financing scheme.

2. Professional equipment including x-ray department, physiotherapy apparatus, laboratories, etc. Stringent measures of economy must be adopted.

3. Legal considerations such as incorporation, malpractice, insurance, etc.

After these preliminary investigations and a compilation of all the data available pertaining to the above mentioned questions, the committee should scrutinize the plan and standardize the requirements regarding the equipment and the general policy of the clinics. As the critical situation requires emergency measures, a speedy report should be prepared and every delay avoided as much as possible. Weekly pathological conferences and discussion of interesting cases should be one of the requirements; a library should be created by having each member subscribe to a different magazine. In order to safeguard against imposture, a trademark should be accepted and allowed to be used only by groups which come up to the required standards.

After all the plans have been prepared they should be submitted for approval and controversial matters be discussed at the meeting of the medical societies or their local branches. Of course, no pressure should be exerted upon physicians with individualistic tendencies who may

be inclined to pursue the leisurely progress (?) of practice along the path of evolution. It can not be expected from any medical society to favor any particular group of physicians as it represents the entity of the profession; on the other hand, if the majority of the members is in favor of creating cooperative pay clinics it is the duty of the medical society to assist them and if the circumstances allow, to sponsor them. Clinics conducted under auspices of the medical society are bound to enjoy prestige and create confidence in the public; the sponsorship does not mean that the medical society is practicing medicine.

The medical society should insist that the clinics hold in high esteem the principles of ethics and do not succumb to enticement of ballyhoo advertising. If the majority of members is of the opinion that advertising is essential for the success of the clinics, a standard advertisement should be worked out which in a dignified manner would inform the public regarding the location and the scope of the clinic. Each clinic can advertise separately or preferably in a cooperative manner using for instance a slogan "In case of sickness consult your nearest health center." The expenses of such a collective advertising could be defrayed pro rata by all the clinics in the particular city. A committee consisting of representatives of each clinic can take care of cooperative buying of supplies. Ultimately the clinics can amalgamate and have branches throughout the city or they can stay only in loose connection with each other according to the wishes of the members. A mutual agreement should also be made regarding fees as otherwise an undesirable competition in form of cut rate fees is liable to develop.

If for some reason or other the medical societies should be reticent to active participation in this plan, the only solution of the problem lies in organization of physicians without the aid of the local medical society. The disadvantages of such program are a lack of a uniform system regarding organization and policy of the clinics, the difficulty of conducting the advertising in a proper manner—if this kind of publicity is regarded as necessary by the members and the above mentioned danger of competition by means of cutting the fees.

It is self-evident that congeniality, mutual

confidence and wholehearted cooperation are of paramount importance for the success of the program. The popularity of the existing clinics should strike a distinct note of encouragement to the panic stricken physicians who entertain the dismal thought that the wolf can not be clubbed from their doors. In the light of the foregoing considerations it is evident that the plan can be accomplished if instead of a strife of tongues the hitherto lacking energy and a joined endeavor be used to put the practice back on its feet. The physicians should crowd their shoulders together to smash the gloom of depression and to curtail the insatiable appetites of dispensaries by translating the advantages of the outline Utopia into realities. The submitted plan naturally has its shortcomings and is not a panacea but is to be regarded as a spark set to ignite the idle motor and to drive it towards a constructive accomplishment. The writer is aware that the opinions are widely divergent, that certain incongruities be pointed out and that the scheme will be viewed with considerable misgiving by a minority of the profession, but an overwhelming majority will meet it with a whole hearted commendation judging from numerous personal interviews. It must be admitted even by those who nurse a fatalistic resignation to what they regard as inevitable that the alternative of state medicine is less appealing than the above outlined platform. Instead of allowing the shackles of state medicine to be bound upon them the physicians should be given the privilege to shape their own destiny. State medicine as exemplified in Great Britain exerts vicious influences and has detrimental effects on the morale both of patients and physicians and there is no doubt that the dangers of state medicine can be mitigated only by a quick cooperative action of the medical profession. Healing a surface is like plugging the opening of a seething volcano; only radical measures in form of a rapid creation of pay clinics can help to solve the problem; wrathful exclamations towards dispensaries and pay clinics owned by hospitals or universities will bring no results. It is the haunting sense of the imminence of sweeping events which is responsible for the sickly mood of the majority of physicians; recovery can be expedited and effects of the economic depression mitigated only by cooperation; happier frame of

mind can be made by getting together. Cooperation is the watchword which will steer our ship of progress to the stormy sea. In this sign we must conquer.

1200 N. Ashland Avenue.

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CASE REPORT OF AN ACUTE STRANGULATED MECKEL'S DIVERTICULUM BY A FIBROUS BAND WITH GANGRENE

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Meckel's diverticulum is a congenital intra-abdominal anomaly persisting as an intestinal tubular appendage, the embryologic remains of the fetal vitelline duct, which failed to become obliterated. Usually this obliteration takes place early in fetal life, about the seventh week. At an early period of embryologic development the vitelline duct connects the gut with the yolk sac. (Richter).

According to most articles on the subject, the estimated frequency of Meckel's diverticulum in cases that go to autopsy is about 2%. There is considerable discrepancy between the frequency of Meckel's diverticulum as found by surgeons and that reported by anatomists. Obviously, anatomists find it more frequently than surgeons. Balfour, whose data is cited in many articles on the subject, found fifteen cases in 10,600 laparotomies, and in only five cases was the diverticulum the immediate cause of the operation. In 2,600 autopsies at Johns Hopkins fifteen cases were reported. Of the patients that come to operation, young adults form the majority of cases. The average age in Porter's 184 cases at which crisis occurred is about twenty-one years and two months. It is seen in males more frequently than in females in a proportion of three to one. The diverticulum may give trouble in infants as well as in old age.

Considerable literature has accumulated dealing with the various complications, anomalies of position, size, form, histopathology, and the different ways the diverticulum can give rise to acute and chronic abdominal symptoms.

My interest was aroused by the rare pathologic finding of a diverticulum strangulated by a fibrous band terminating in gangrene. I made

a fair search of the literature for similar cases. Strange as it may seem, I have been unable to find reference to a similar authentic case report in the literature up to date. This prompted me to report this interesting case.

In 1905, M. Porter collected and classified 184 cases of involvement of Meckel's diverticulum in which are included four of his own cases. In his series there is no mention of a single case of strangulation of Meckel's diverticulum by a fibrous band. Wellington compiled 326 cases which had been reported up to 1913 with pathologic involvement of Meckel's diverticulum. Likewise, in this series there is no single reference to strangulation of the diverticulum by a fibrous band.

Congenital or acquired adhesions of the diverticulum to various organs and structures in the abdomen are referred to particularly by Halsted in his studies on intestinal obstruction from Meckel's diverticulum. Richter, in 1906, refers to congenital bands in his article on "Vitelline Duct Malformations." No case report, however, appears in the literature describing a fibrous band as the cause of a strangulated Meckel's diverticulum with consequent gangrene. Whether the fibrous band in my case was congenital or acquired is very difficult to state. It must remain an open question.

The impression that one gains in reading most articles on the subject is that the diverticulum acts as the offender causing different types of intra-abdominal pathology. It may assume the rôle of a band and cause strangulation of the bowel loops; it may undergo incarceration in herniae, ulceration with or without intestinal hemorrhage, perforation and peritonitis, fecal impaction, cysts and tumor formation; or, it may open at the umbilicus, or contain parasites or foreign bodies. In my case, the diverticulum was the victim of a tight band at the junction of the bowel, causing a shutting off of the blood supply, terminating in gangrene. Thus, my case is of double surgical interest,—a Meckel's diverticulum, and a fibrous band causing strangulation and gangrene. The clinical picture was that of an acute abdomen, demanding exploration.

Case No. 33463. A female, nineteen years of age, had a sudden onset of cramp-like pains all over the abdomen on February 13, 1931. She vomited several times that day. Even liquids could not be retained. The abdominal pains recurred at frequent intervals throughout that

day and night. Next morning the pains became more marked in the right lower quadrant, towards the midline. She was given an enema with some bowel evacuation, but no relief of pain. The temperature was 101.8 and pulse 100, on entrance to the Francis E. Willard Hospital.

Physical Examination.—A young well nourished female with an anxious pale face, in acute pain. Abdominal palpation revealed exquisite tenderness over the lower half of the abdomen, more marked on the right side near the umbilicus. Palpation on left lower quadrant was tender, but most of the tenderness was referred to the right lower quadrant. Both recti muscles were rigid, but right more than the left. During the examination of the chest, which was negative, I asked patient to cough, and she complained of intense pain in the abdomen.

I ordered patient to hospital with a tentative diagnosis of acute appendicitis.

The leucocyte count soon after entrance to hospital was reported as 34,000. This baffled me, because usually appendicitis is not accompanied by such high white count. Salpingitis or twisted ovarian cyst with or without hemorrhage were suspected, but could not be ruled out.

Rectal examination gave no clue to her condition. The diagnosis was changed to an acute surgical abdomen.

Operation and Operative Findings.—A midline incision below the umbilicus was made and a considerable amount of serosanguineous fluid escaped from within the peritoneal cavity. As the presenting loop of bowel was packed away with a lap-sponge, and retractors inserted, a distinctly black structure was noted extending across the midline. I inserted the index finger underneath this structure and attempted to raise it, but noted that it was held down tensely at its neck by a band, a little less than a half centimeter in width. This band was cut. The tip of this black structure was attached to the mesentery of the small intestine on the left of the midline, apparently by recent adhesions, because it yielded to gentle pressure. As I delivered this structure the contents entered into the bowel with a distinct gurgle. This structure arose from the antimesenteric border. The loop of bowel to which it was attached was the lower part of the ileum, which was hyperemic, and covered with fibrinous exudate. It was now apparent that we were dealing with a gangrenous Meckel's diverticulum.

Pathologic Description by Dr. Rukstinat.—Portion of bowel 3.5 cm. in diameter with a wall and lining black-green from gangrene. In one place about 2 cm. from the blind end is a thickened pebbled place 1.5 cm. in diameter.

Microscopic.—The portion of bowel has its wall markedly necrotic, and this process extends also to the submucosa and muscularis. The usual accompaniments of a marked hyperemia and leucocytic infiltration. Gangrene of bowel.

Diverticulectomy with stump inversion by the purse-string method was performed, followed by an omental graft. One cigarette drain was inserted, and abdomen closed in the usual manner.

Patient made an uneventful recovery and left hospital in twelve days.

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THE ASCHHEIM-ZONDEK TEST AS AN AID IN THE DIAGNOSIS OF TUBAL PREGNANCY

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The Aschheim-Zondek test has been made a sufficient number of times to date to be accepted as a reliable test for pregnancy, especially in the early weeks. The test as reported by Aschheim-Zondek¹ and confirmed by Kraus,² Hannan,³ Stone,⁴ Mack,⁵ Liese et al.,⁶ and Parvey,⁷ is ninety-eight per cent. correct. A report may be obtained within twenty-four hours according to the technique of Friedman,⁸ and Schneider.⁹ The test depends upon the presence of a hormone derived from the anterior lobe of the pituitary gland and excreted in the urine, which when injected into immature animals, mice or rabbits, will produce ovulation. It is interesting, but in most cases of no great importance to make an early diagnosis of intra-uterine pregnancy, but it is of extremely great importance to make a diagnosis early of extra-uterine pregnancy. In a tubal pregnancy serious accident may occur in the way of rupture and associated hemorrhage which endangers the life of the patient. An early diagnosis of tubal pregnancy before rupture, therefore, is important, and an early operation can be done with little difficulty due to absence of peri-tubal inflammation and adhesions with little or no risk to the patient.

CASE REPORT

Mrs. L., aged 29 years, para-2, gravida 4. Two normal pregnancies and deliveries. Pelvic peritonitis three years ago following a septic abortion. Last period, November 27, 1930. Slight flow January 27, 1931. January 26 complained of pain in the abdomen, low, on the left side. Bimanual examination revealed: Uterus not appreciably enlarged; no cervical softening; mass felt to left of uterus at height of fundus about size of small

hen's egg; very tender. Urine negative. R. B. C. 4,-340,000. W. B. C. 14,500 to 10,300. Hb. 85%. Sedimentation test negative. Aschheim-Zondek test positive. (Test made at the University of Chicago.)

Patient operated on February 2, 1931. Left tubal pregnancy found, and removed. Uneventful recovery.

Up to the present time a large majority of cases are diagnosed only after rupture and hemorrhage have occurred. Urdan¹⁰ states in his article on ectopic pregnancy, "Except in cases with severe hemorrhage the diagnosis is difficult." To my mind the salient points for early diagnosis are: 1. Amenorrhea, 2. Abdominal pain and tenderness, 3. A mass palpable to one side of the uterus. 4. Negative sedimentation test, 5. A positive Aschheim-Zondek test. Fainting, pallor. Cul de sac puncture is of value only after rupture has occurred.

In reviewing the literature I have been able to find but *five* cases reported of ectopic pregnancy with positive test reactions. Lese et al reported three cases and Mack reported two. Aschheim states: "The test can be expected to be positive in tubal gestation when the embryo is alive or not later than ten days after its death." Stone makes this statement: "This is an accurate test to differentiate early pregnancy, intra-uterine or ectopic, from pathological conditions that simulate pregnancy." Urdan says, "In the differentiation of adnexal disease from extra-uterine pregnancy, the Aschheim-Zondek test should prove of value." This case has been reported with the object of calling attention of others to this test in suspected ectopic cases, so that the test may be early applied, thereby placing it on a firm foundation as an aid in the differential diagnosis of ectopic pregnancy.

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INSULIN REACTIONS—THEIR SYMPTOMS AND DIAGNOSTIC IMPORTANCE*

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The widely spreading use of insulin has necessitated the recognizing of overdosage. The possibility of insulin being responsible for conditions varying from deep coma to the most bizarre behavior disturbances must now be taken into account. Upon a prompt diagnosis rest the prompt therapy and avoidance of a host of diagnostic errors.

"Reactions" are rendered more likely by the large numbers of patients on unweighed diets. Even with weighed diets unexpected sudden rises of tolerance for glucose make a formerly correct dose much too large.

Mrs. T. is 45 years old. She has taken insulin for four years in doses of 30-0-15 daily. For the last several months she had been sugar-free. On one occasion following her evening dose and before supper she acted peculiarly. She spoke nonsensically. She lay down on account of a severe occipital headache. The orange-juice brought to her by her husband was refused with the comment, "He is just experimenting on me." She would answer very slowly and then only on repeated demand. She recognized those about her. Her movements were slow and stiff. Her pupils were dilated. Her reflexes were normal. She is usually quite sedate. Imagine the surprise of a lady caller upon seeing the patient dancing about to radio accompaniment. On departing, the guest had to answer repeated "good-byes" emphasized by poundings on the front window. Mrs. T. waved to her as long as she was in sight. Orange-juice promptly relieved an attack. Nothing of the attack was ever recalled by the patient. She herself relieved many attacks by taking sugar. Occasionally they came too insidiously or too rapidly or she would decide to "fight them off." They were always followed by lassitude and fatigue similar to that seen in the post-epileptic state.

Mr. D., sixty-six years old, had been taking insulin (15-0-10) and the same diet for two years, remaining constantly sugar-free and not reporting for observation. Three hours after his evening dose and two and a half hours after his supper he became strangely unwell. He doubled up, apparently with abdominal pain. He shouted, laughed and struck at everybody. He vomited the orange-juice and sugar. Morphine and codein failed to quiet him but he recovered promptly after an injection of adrenalin. He remained sugar-free and free of such attacks after the cessation of insulin.

Mr. A., thirty-five years old, had recently experienced severe acidosis. Four hours after his morning

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dose of eighty units he was seated before a table examining a two-hour sample of urine. He was swaying back and forth vainly trying to drop urine into the Haines' solution. According to him, his fingers felt numb. His pupils were dilated. On questioning, he said, "My fingers feel sort a— feel sort a—. That is the first time I had a—." Orange-juice or milk relieved him promptly. He remembers all the occurrences of so mild a reaction.

Elmer, aged eighteen, "gets big teeth." His teeth and ears feel like those of an elephant.

Dorothy, aged two years, entered the hospital in deep coma. She responded to large six-hour doses of insulin by coming out of acidosis and recognizing her mother and calling for her doll. A few hours later, however, she became rigid. Her jaws were set. Her pupils were dilated. There was a convergent squint. She had opisthotonos and would stiffen and whine if the bed were shaken or she were touched. Orange-juice was taken in small doses and against resistance. It did not relieve. Two pediatricians believed the condition to be encephalitis or meningitis. Her temperature was slightly elevated. The spinal fluid was clear, under normal pressure and contained only one cell to the cubic millimeter. The spinal fluid sugar was fifteen. The urine contained a large amount of sugar. The blood sugar was 0.132%. The fundi were normal. She recovered in twenty-four hours. There remains even today an awkwardness of the right arm and hand. Right-handed before, after the attack she allowed the right hand to hang limply. She is still slightly apraxic with the right hand and uses the left hand by preference. The strength of the right hand has almost completely returned. She undoubtedly suffered some brain injury while in the insulin shock.

Louis was eleven months old when first seen in deep coma. He is now three years old and recently won honors in a baby show. In the establishing of a sugar-free state, he has had numerous insulin reactions. On the same dose of insulin and an unvaried diet he will one day give a positive Haines' test and the next day have a reaction. His mother has learned to recognize fussiness as prodromes. He "wobbles" on his feet and may fall. His head tumbles from side to side in a short motion. The eyes twitch and cross. The pupils dilate. He apparently does not see or at least does not react to things held before him. He may go into a tonic spasm if not promptly given sugar. In one attack he could not swallow. All the mothers of my infant patients have adrenalin for injection. He responds at once to that. It has been necessary to use it only twice.

Miller and Trescher have reported transient hemiparesis in an insulin reaction. Sjoegren and Tillgren have seen extreme confused states and acts of violence in overdosed insulin patients.

Normally there is eighty to one hundred twenty milligrams (0.08% to 0.12%) sugar in one hundred cubic centimeters of blood. The

findings of McLeod are, in general, true. When the sugar reads 0.07% perspiration and restlessness are noticeable. Then follow incoordination and loss of emotional control until at 0.03% there are convulsive movements and coma. The pupils dilate rather early in the reaction. The pulse becomes more rapid.

The symptoms of insulinism have been ascribed to the anoxemia accompanying the hypoglycemia. McLeod believes that the lessened oxidation in the brain explains the train of events in a reaction. A dog with a clamp on its trachea shows many of the symptoms of insulinism. Spinal dogs showed no convulsions below the section.

Ashe, Mosenthal and Ginsberg report instances in which there was absolutely no sugar discoverable in the blood after insulin. Their patients were semicomatose and had jerkings of the extremities. They recovered.

Hypoglycemia has been noted in conditions other than insulinism. Holmstroem found epileptics showing blood sugars as low as 0.08% at the time of their attacks. A uremic patient with convulsions had only 0.03% sugar in his blood. Raising his blood sugar did not control the convulsions. Dehydrated, wasted infants have shown figures as low as 0.025%. Marathon runners at the end of their course presented many of the symptoms of hypoglycemia with blood sugars as low as 0.045%. These symptoms were prevented by a glucose meal before the race. Dehydration increases the severity of a reaction.

As John, Mosenthal and many others have pointed out, the possibility or type of a reaction can be predicted neither from the size of the dose or the height of the blood sugar at the time of the insulin injection. Patients have had reactions and simultaneously had hyperglycemia with large amounts of sugar in the urine.

To Foshay the reaction in the presence of high blood sugar means a glucose depletion of the fixed body cells with often a coincident high glucose content of the blood plasma.

Some patients have reactions after very small doses. Their reaction seems to be always of the same character. A person having shown automatism once is likely to show it in future reactions. I have repeatedly seen diabetic patients in insulin reactions after an injection of ten

units. On the other hand, I have nondiabetics, without hyperglycemia, who take twenty to thirty units before each meal with no signs of a reaction.

Of course, reactions may all be considered as errors in the diabetic treatment. Anyone handling a large number of diabetics, who have at least as many vagaries as other humans, is bound to encounter symptoms of overdosage in the struggle to maintain a sugar-free state with insulin.

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NON-SURGICAL WORK IN INDUSTRIAL MEDICINE*

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In the far East, where my work led me to spend more than a decade among the Chinese people, there is a piece of advice often given by old-timers to those from Western countries who have but recently arrived. "If you are going to write anything," they say, "or take any pictures for use back in the home country, by all means do it in your first six months. After you have been out a while, things will begin to look natural and commonplace to you and you will no longer have the *feel* of what is interesting."

I am the newcomer into the field of industrial medicine, as a specialty, and I am seeing

this special field with eyes of great interest and some concentration, and I shall attempt to bring to you men of longer service in this field some of the more vivid of my impressions and some thoughts that have come to me.

This is by way of apology, if you will, for coming before this learned body within so short a space of having entered your ranks. My initiation into this specialty has, however, been under the very vigorous sponsorship of my old friend and present associate, Dr. Carey P. McCord, and our days have been full.

Among the students in my undergraduate days—and I think ours was perhaps an average student body—we were all impressed with the importance of surgery. Few of us did not promise ourselves and our intimates that we intended to do surgery; be surgeons. A few brave souls had other ideas, psychiatry, medicine, pediatrics, but we hardly understood them and were even a little sorry for them. Surgery appealed; it was spectacular. Things medical seemed rather petty to us. Painstaking collection of facts in the making of diagnoses did not appeal as did the quick relief of suffering by brilliant operation.

Most of us have felt the urge of surgery. I, personally, have gone through inoculation and all stages of the surgery fever, and the paths of my work have carried me to service when my own operative cases have counted well over the thousand mark in a year. I got to feeling that I was a surgeon. I hope then that you will grant that my own present feeling of the importance of non-surgical work in industrial medicine is without serious prejudice.

I have learned that the mine run of even the surgeon's cases will average small. The spectacular case is no more common in surgery than it is in medicine. Major accidents in industry calling for surgical treatment constitute, actually, not more than one per cent. of all cases that should be seen by the industrial physician. The other ninety-nine per cent. of cases are either of a minor surgical nature or are truly medical. It is my sincere belief that the proper tendency of industrial practice ought to bring an even greater proportion of minor cases and fewer of the major sort. By study of the industrial processes and thorough research, we are all striving to prevent the occurrence of acci-

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dents, both medical and surgical. Each serious accident in industry ought more and more to be counted a reflection upon those of the profession who are in industrial medicine.

The value of an industrial physician to any industry will depend very largely upon his study of that industry. If he knows the materials used and their potentialities of harm to the worker, he will be in a position to prevent that harm. If he knows the machines and the operations of manufacture, he will be in better position to advise safety measures. If he knows the workers individually, he will understand many of the factors that bring about accidents. If he mixes with the workers and learns to understand the language of the shop, he will be in a better position to advise in individual cases. He will be interested in the occupational diseases that ordinarily occur in that industry and with the hazards of the factory.

It is a thesis of our group that every industry, every mercantile establishment, every transportation company and every mine, regardless of its size, will profit both in a business way and with regard to the welfare of its workers by regular medical supervision. If an industry, or a group of industries, can employ the full time of a physician, the situation has better possibility of approaching the ideal of good industrial medical practice. Something of the scope of activity of such a full time man I shall point out here.

Physical examination of all prospective employees will be valuable. The physician making such examinations regularly for a plant will be in position to add to a simple diagnosis of sound or unsound health some recommendation for job placement. A re-examination of all employees at regular intervals will also be of great value in preventing disability.

The day by day rendering of medical and surgical relief to employees not for accidents occurring in the plant alone, but for ailments of the workers; with this ought also to be linked up advice to workers on matters for the attention of their family physician or specialist, and, in addition, general advice should be given for the care of members of the workers' families. The actual care of the families, and extended treatment, either medical or surgical, for the workers themselves, unless the condition be di-

rectly an industrial one, should, I believe, be in the hands of practicing physicians outside the industry.

The industrial physician ought to strive to educate the workers in health matters concerning both the factory and the home. Along this line he will find it profitable to make use of posters on safety and general health matters; he will perhaps compile non-technical pamphlets for distribution among the workers. In times of special dangers, such as in epidemics of influenza, he may prepare pointed advice in the form of posters or notices.

A thorough understanding of the laws of his own state which deal with compensation and the legal status of injuries is important. His advice should be as available for the worker and as impartially rendered as it should be to the owners of the industry. A thorough acquaintance with the sanitation of the plant and advice for correcting possible hazards; cooperating with the safety engineer in investigating sources of accidents and devising remedies for such occurrences; or, if there is no safety engineer, carrying on a vigorous safety program himself. These are all a proper part of the activities of the industrial physician.

If there is any sort of Mutual Benefit Association among the workers or in connection with the plant management, the physician ought to concern himself actively in that. Accurate records of all of his activities, especially of his case work, ought to be kept. A non-technical record of all work done should be rendered regularly to the management to keep them mindful of the value of the service. Both of these records are indispensable in helping to adjust compensation claims of the workers.

In this country 99 per cent. of the factories have less than 500 employees; a high percentage of all our factories have from 25 to 50 employees. This situation tends to complicate the business of providing and obtaining adequate medical supervision at a cost in keeping with the profitable operation of the plant.

The small factory, obviously, cannot afford the full time of an industrial physician. We believe, however, that with proper use of his time any concern employing as many as 250 workers will find it a good investment to engage the full time of a physician. It will, in many cases, be

in order for him to fill the place of safety engineer, personnel director and other allied duties in addition to those more naturally falling in the sphere of medical supervision.

Industrial medicine as a special field is coming to its proper recognition alongside of the older divisions of medical science. It might be profitable here to discover, if we can, the requisites of good industrial medicine as a specialty. I think we can say that the mere going into an industry and practicing medicine does not constitute industrial medicine, even if that practice occupies all of a physician's time. And, conversely, I think that because one does some work outside of industry, that fact need not in any way interfere with the practice of good industrial medicine. I am sure, however, that we may say with safety that in a great majority of cases the medicine practiced in industry is not properly industrial medicine at all.

The man who wraps fingers and waits for an amputation is not an industrial physician or surgeon. The man whose great interest is in the problems of industrial medicine, who seeks to know his industry in its manifold phases, his working people, and their problems; who seeks to advise both the industry and the worker how to avoid both accidents and diseases, is truly an industrial physician and deserves the name. He may live in a town where there is one small factory, not large enough to use all his time in industrial work, but if he studies his factory problems scientifically and carries on his work with the industry in that spirit, he is practicing good industrial medicine.

In order to bring out more concretely what are our own ideas and ideals for industrial medical practice, I am going to outline here in a general way the scope of activities of our own organization—The Industrial Health Conservancy Laboratories of Cincinnati. Sacred writ says that "By their works ye shall know them." And so by our activities you may know us and what we stand for in industrial medicine.

The work of the Laboratories falls mainly into three divisions:

1. The day by day medical and surgical relief service to numbers of smaller plants.
2. Investigation of specific problems in individual plants. Such things as the occurrence

of an epidemic of an occupational disease among workers in a factory.

3. Investigation on a much larger scale of problems common to large bodies of workers. Such inquiries are usually conducted under the auspices of either associations of workers themselves or associations of industries.

1. Under the first head it should be said that our organization was created some twelve years ago for the rendering of day by day services to small industrial plants, the concept being that a group of physicians could meet all the requirements of good industrial medicine by giving to each a part of the day and still carry out all of the functions that a full time man should render to a large concern.

Experience has shown that in comparison with the haphazard sending out of cases without direction or control, this method of heading up all health activities of one plant or of several plants under the control of one compact group of physicians is far more desirable and effective in terms of records and continuity.

In every sizable community in our land there exists the opportunity for the organization of high grade systematic medical service to the smaller plants within reach.

2. In addition to the need for day by day services, almost every plant is confronted a few times every year with an unusual situation—the outbreak of an acute industrial intoxication, the appearance of unwarranted claims against the plant, special problems of ventilation, lighting, sanitation.

In every work place there is likely to be a condition of faulty environment that is far more important in the aggregate than all the major surgical cases of the year.

We no longer worry about the milk supply in our cities; our water supply is good and pure; sewers are no longer a major problem, but the control of environment has not been sufficiently extended to industrial plants, especially to the smaller concerns. In three-quarters of the small plants there exist conditions which provide problems which, unsolved, are potential sources of trouble in such fields as lighting, ventilation, heating, fumes and odors, vapors and noises.

It has been said and generally accepted as a fact that odors are not a cause of disease, but I am convinced that continued odors are a def-

inite source of health impairment if by no other means than the limitation of the depth of breathing.

Seating of the workers at their bench or machine, the washing and the eating facilities, dust, clatter of machines, are important items in the health of workers. Occupational diseases may arise from conditions remote from materials or machine processes.

3. Somewhat out of these general lines and apart from the usual routine of the work of serving industries in a medical way, is the third general division of our activities and it has come to be the principal object of the Industrial Health Conservancy Laboratories. This division of our work constitutes certain extensive investigations carried out under the auspices of groups of workers and of employers of labor. The worth and results of these studies are applicable to all activities within the field of the particular industries wherein the studies are made.

I cite you three examples of this class of our work. A National Organization of train dispatchers found that the average age at death in their ranks was falling only a trifle above fifty years, as against a general average of over sixty-four years for male workers in general. They came to us with their problem and we undertook an extensive study which carried us into states north, south and west. We now have facts which show that there is an incidence of 81 per cent. of cardio-vascular lesions in the widely scattered group studied. There is a definite occupational nystagmus in 67 per cent. of the individuals examined for that condition, together with a 56 per cent. incidence of occupational deafness, principally in the left ear and attributed to the continual flow of noise into an ear phone worn on that ear. To our minds, the impairment resulting from unusual work conditions largely accounts for premature and early death.

An investigation of the toxicity of benzol was made imperative by the fact that claims were being made that pure benzol might be non-toxic. Our work has shown that the purest benzol obtainable is equally if not more toxic than the commoner less pure varieties, and that some of our fundamental diagnostic criteria are of only very limited value in conditions caused by exposure to benzol. In particular, it can now be

stated that leucopenia is by no means regularly associated with benzol poisoning, and also that such a condition is to be found as well in normal individuals.

An entirely different type of industrial medical problem may be found in an investigation just completed after two years of work for the determination of the incidence of cardio-vascular disease in various types of workers. Without attempting to present findings in detail, it is interesting to note that clerical workers, with presumably higher average intelligence and doing less physical labor, exhibit a higher rate of incidence of cardio-vascular disease than do factory workers engaged in physical labor under less desirable conditions.

These decades are seeing great changes in the whole field of medical practice and greater are possibly on the way. When The British Medical Association, after years of experience with a limited panel system, now seriously purposes the placing of all medical practice in the Kingdom under some sort of panel system, we may be sure that the medical profession in our own country will in the next few years be confronted with many exceedingly difficult problems. It is to be hoped that in the meeting of these situations industrial medicine will not lag, but rather lead in the march toward betterment in things medical.

THE BACTERIOLOGY AND MANAGEMENT OF INFECTIONS OF THE FEMALE GENERATIVE TRACT*

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The bacteriology and management of infections of the female generative tract is too extensive a subject to present in detail at a medical meeting. Although this presentation may appear to be too long, an attempt is made to be brief and to emphasize only those infections which are not commonly recognized or about which something new has been observed. Since infection is not dependent alone on bacteria but on the state of the tissues, the local defense

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mechanism of the female generative tract may first be considered.

The uterus forms a direct connection between the peritoneal cavity and the outside world. There are several barriers to the entrance and growth of pathogenic bacteria.

First: The closed vaginal orifice is due to an intact perineum and pelvic floor. Second: The vaginal secretion, which is acid, is due to the lactic acid developed from the fermentation of the glycogen in the vaginal epithelium. There is also a definite bacterial flora in the vagina which is thought to be as important to its health as the intestinal flora is to the intestine. It consists of long Gram positive bacilli, chief of which is Döderlein bacillus.

Third: The closed cervix, both at its external and internal os, with its thick, mucous secretion, acts as a mechanical barrier.

Lastly: The intact lining of the entire generative tract is indeed a protector against most bacterial invaders except the gonococcus. That the lining of the corpus has a definite defense mechanism against infection is known from bacteriologic studies.

The external genitals are subject to any infection to which any skin surface is liable. Their infections and that of the Bartholinian glands offer no difficulty in the determination of cause except in the chronic forms as esthionene. All stages of syphilis may be manifested and are the same here as elsewhere. However, diphtheria of the vulva occurring at any time but particularly in childhood and in the puerperium must be emphasized, because the frequency with which it is overlooked since it is uncommon and because it may be as serious as an infection of the throat. The diagnosis is based on finding the diphtheria bacillus in the presence of a membranous lesion.

The so-called acute ulcers of the vulva, which may be quite annoying, are worthy of note. They are small, superficial ulcers, being about 6 to 8 m.m. in diameter, sharp edges and red bases. Smears show the *Bacillus crassus*, which is a long, fine gram positive bacillus resembling the Döderlein bacillus. Simple measures, as boric acid compresses followed by 2% mercurochrome or 5% ammoniated mercury, are usually sufficient for cure. Caustics are contra-indi-

cated, as they produce destruction of tissue and allow secondary infection to occur.

The yeast infection of the vagina is very often confused with a gonorrheal infection. It gives rise to a yellow purulent discharge as well as the patchy membranous lesions in the vagina. Smears with Gram's stain show the oval opaque forms with buds or the mycelia and the oval forms. This type of infection yields readily to topical application of solutions of glycerine containing iodine or ichthyol and to daily iodine douches.

Another form of vaginitis may be due to the *trichomonas vaginalis* and various pyogenic bacteria. The condition occurring in the non-pregnant as well as in the pregnant woman produces a disturbing vaginal discharge. It is a yellow seropurulent, bubbly, sour smelling discharge. The parasites are best seen in fresh specimens in a hanging drop preparation. They are larger than a leucocyte but smaller than an epithelial cell, being oval in shape with a tapering end from which extends a very actively moving flagella. On one side of the organism may be seen an undulating membrane. Although the treatment is not entirely satisfactory in that permanent cure does not commonly result, the patient may be made much more comfortable. Every three days the vagina is well cleansed with green soap and warm water. The walls are then painted with 10% mercurochrome and a tampon with glycerine and ichthyol is inserted. The following morning the tampon is removed and an iodine (1%) douches is taken. This antiseptic douche is continued twice daily for ten days and then lactic acid (1%) douches are used. The frequency of the lactic acid douches is decreased as improvement develops, until douches are no longer necessary. It is not certain that the *trichomona* produces the infection independent of the mixed bacteria which are present.

Although the defense mechanism described above prevents the ascension of pathogenic bacteria, there are certain conditions that break down this mechanism.

First: Menstruation with its pelvic congestion followed by the bloody flow, which tends to alkalize the vaginal acid secretion. Also the endometrium is not intact. Therefore, lower genital infection, as of the cervix, tends to spread upward at this time. In the course of a gon-

orrheal infection this is a common occurrence, so that the first attack of tubal involvement dates from this time.

Second: Traumatization of the cervix and corpus may result from dilatation and curettage.

Third: Childbirth is a more common cause of uterine and tubal infections than is appreciated. The factors allowing infection to occur are the breaking down of the local defense mechanism as relaxation of the pelvic floor, flooding of the whole genital canal with blood and amniotic fluid, effacement and dilatation, with common tearing of the cervix and general traumatization of the tissues. All of the conditions enumerated are markedly exaggerated with any obstetrical operation where instrument or hand is introduced into the uterus. These are common and important predisposing causes of pelvic infections. Results of birth trauma, as lacerated perineum and lacerated cervix, malposition of the corpus with passive congestion, are indeed inviting conditions for pathogenic bacteria.

Fourth: There is the unsurgical practice of inserting a stem pessary for dysmenorrhea, contraception or amenorrhea.

Fifth: Local disease, such as dysentery or cystitis, may overwhelm the vaginal flora. Tuberculous infection is usually blood borne, which may be also true of some streptococcus infection. Extension from appendicitis is uncommon.

In addition to this local defense mechanism, the general resistance must also be considered. The general resistance is an important factor in preventing puerperal septicemia and in localizing an infection that has developed.

In chlorosis, typhoid and Basedow's disease, the glycogen content of the vaginal wall is said to be changed and therefore the normal vaginal flora disappears, thereby allowing pathogenic bacteria to enter and produce pathology.

Infection of the corpus uteri occurs almost always only after an abortion or a full term delivery. The bacteria most often found are the colon bacillus, staphylococcus, gonococcus, pneumococcus, streptococcus and the less common ones being diphtheria bacillus, non-specific spirochaetes and fusiform bacilli. The organisms most feared are the hemolytic and anaerobic streptococci.

The various bacteria may give the same clin-

ical picture, therefore a bacteriological diagnosis is essential to the guidance of therapy. Recent work tends to indicate a definite value in antitoxic serum therapy in the stage of acute metritis, toxemia due to the hemolytic streptococcus. Therefore, in addition to a bacteriologic, a clinical pathologic diagnosis is also necessary. The general measures of rest, highly nutritious diet, fruit juices, alkalies and mild stimulation to elimination and absolute abstinence from local manipulation even to the extent of not using ergot or pituitrin, if no abnormal bleeding occurs. Blood transfusions are indicated in the anemia resulting from hemorrhage or sepsis. Surgical treatment is usually only required in pelvic abscess or intramural abscesses of the corpus.

Late postpartum infections are found in the cervix persisting from recent puerperal infections. These usually respond to rest, topical treatment and douches. When erosions are present, the fine nasal cautery is found to be of value. Also the differentiation of erosion of the cervix from luetic lesions requires emphasizing. The luetic lesion, whether primary or secondary, is usually separated from the external os by normal cervical tissue and presents the usual characteristics of a syphilitic ulcer. However, where the luetic lesion is engrafted upon an erosion, then clinical differentiation is impossible and only a dark field or stained preparation of the secretion may make the diagnosis.

As to tubal infections, the acute stage is usually due to a gonorrheal infection. It is the general consensus of opinion that conservative treatment is only necessary, in the form of rest, relief of pain and a good, nutritious diet.

In the chronic stage, various types of bacteria may be found either as primary invaders or more commonly secondary followers of the gonococcus. A bacteriologic study of the tubes removed from 100 patients found that 20% were sterile. Streptococci were found in 38% of the tubes and in 40% of the cervices. Of those in the tubes 14% were hemolytic streptococci and in the cervices 5%. The other bacteria were *B. coli* staphylococcus, gonococcus, micrococcus tetrages, diphtheroids, *B. proteus*, *B. capsulatus*, pneumococcus and spirilla. Tuberculosis was found only by microscopic tissue study.

Even at this period of tubal inflammation,

rest may achieve much towards making a patient comfortable. However, to restore a woman to normal activity or to a condition where she may work, operation is necessary. For at operation, many adhesions are found between the bowels, omentum and the uterus and the adnexal masses.

From the high incidence of streptococci one may appreciate the importance of a proper time for operation; that is when the infection has been localized and the body somewhat immunized to the organisms. Therefore a period of 10 to 14 days with rest is allowed, during which the tenderness subsides and the leucocyte count returns to normal. Longer periods of rest are desirable, but this is the shortest time found to be safe to operate in order to restore an individual back to her occupation as soon as possible.

The operative procedures are as conservative as possible, especially in the young woman in whom it may be practiced to the extent of making a later operation possibly necessary. For in a certain number of women, after removing a tubo-ovarian abscess, the opposite adnexa, if not markedly involved and allowed to remain, will return to normal function.

Proper care must be taken in preserving the blood supply of the remaining ovary when a tube is removed. The corpus and adnexa are removed only in the presence of marked destruction or distortion of the normal tissues.

Drainage is not usually necessary, as the peritoneum is apparently immunized and can take care of any residual infection that may flare up. It may be necessary in cases where large oozing surfaces are produced in the freeing of adhesions and the removal of inflammatory masses from the cul-de-sac.

A CASE OF TETANUS*

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On the thirteenth of last September, Joseph J., by falling from a pile of posts, received a lacerated wound on his right leg, which became infected with tetanus bacilli. I saw him ten days later at about one o'clock P. M., which was the third day after positive symptoms of tetanus had appeared. His legs were stiff and spasms of the muscles were occurring frequently. His throat was sore, and his jaws were becoming set. It

was plain to be seen that his condition was grave and that it was very necessary that he receive large doses of tetanus antitoxin, intravenously and intraspinally, at the earliest possible moment. As the patient had not had the prophylactic dose or any tetanus antitoxin, I did not dare to commence with therapeutic doses of thirty or forty thousand units, intravenously and intraspinally, for fear of anaphylactic shock. Owing to his father not being willing for him to go to the hospital, and not having a nurse at his home, it was not possible for me to test his susceptibility to the serum by giving every thirty minutes a few drops of the tetanus antitoxin subcutaneously for twenty-four hours. Some authorities claim this should be done. Others do not take this precaution in all cases, especially in emergencies. They claim it is better to give the larger doses in the beginning, for the time saved in saturating the patient with the serum is of more importance than the danger of anaphylactic shock. They point to the statistics of the British war, which show that the refinements of modern manufacture greatly reduced the danger of anaphylactic shock. Out of more than two million prophylactic injections only eleven cases of anaphylactic shock occurred, in all of which the patients recovered. Consequently, I commenced immediately with the prophylactic dose of 1,500 units. This amount was given at four, six and nine P. M., and at midnight 5,000 units were given, making 11,000 units during the eleven hours of the first day of the treatment. These doses were all given subcutaneously. No more serum was given until the next morning at eight o'clock, while at home 5,000 units were given, and at one o'clock in Silver Cross Hospital he was given 5,000 units and at three o'clock 10,000 units. These doses were all given subcutaneously. There being no symptoms of reaction from the serum at six o'clock, it was thought safe to give 20,000 units, intravenously, and immediately following 10,000 units, intraspinally, making 45,000 units for the second day. On each morning of the four following days that he remained in the hospital he was given 20,000 units intravenously and immediately following 20,000 units intraspinally. He was also given 20,000 units intravenously the next day after he left the hospital, which made 236,000 units of the serum he had been

*Read before Staff of Silver Cross Hospital, Joliet, Ill.

given during the six days. This was all the treatment he had. He did not show any signs of improvement until he had had 200,000 units of the serum. He made a complete recovery and went back to school in four weeks from the beginning of his illness. The British war statistics demonstrate the value of the prophylactic use of tetanus antitoxin. Before the routine use of tetanus fifteen to thirty-two per thousand developed tetanus, while after its use the per cent, was reduced to one and seventeen hundredths. While some reason exists for difference of opinion in regard to the value of the prophylactic dose, results have proven that there can no longer be any valid objections to the intravenous and intraspinal routes. The great majority of our best authorities agree that tetanus antitoxin is the treatment for tetanus and that as soon as the slightest symptoms of tetanus appear, an effort should be made to saturate the patient with the serum, before the toxin becomes fixed in the nerve cells of the spinal cord. To accomplish this it must be given frequently in large doses subcutaneously, intravenously and intraspinally combined.

RAPID INCREASE OF QUACKS IN GERMANY

Under the protection of freedom of treatment, established by parliament in 1869 in opposition to the government, quackery in Germany has made great progress. Quackery is profitable and entails no particular risk for the one who practices it. In 1879 there were in Berlin 28 quacks; in 1907 the number had increased to 1,349. In Prussia the quacks increased from 5,063 in 1923 to 5,648 in 1924, an increase of nearly 600 in one year. In 1907 the number of quacks in Germany was placed at 12,000. Quacks are recruited from all sorts of trades, professions and occupations. According to statistics issued in 1898, 20 per cent of the quacks in Prussia belonged to the laboring class, 40 per cent were artisans, 16 per cent were tradesmen, and 24 per cent had followed occupations requiring considerable schooling. Of the female quacks in Berlin, 58 per cent had been maids, 24 per cent garment workers, and 10 per cent charwomen, or day workers. In 1910, of 1,735 quacks in Prussia 258 were small farmers and tradesmen, 587 were artisans, 300 were merchants and industrialists, 76 were laborers, 218 were civil servants (among these, 35 pastors and 99 teachers); of 669 women quacks 49 were midwives, 14 masseuses, 15 nurses, 230 with no special occupation, and the remainder were wives of laborers and artisans. The law for the combating of venereal diseases, which went into effect, Oct. 1, 1927, has proved sufficient in the field of venereal diseases to check the practice of the quacks.

According to the suggestions of Prof. Dr. Ebermayer, German jurist and former attorney general, a law to prevent quackery might take the following form:

Any person who, without having been licensed according to law or by exceeding the limits of the authority delegated to him by his license, except in an emergency, shall give another person medical treatment as a commercial transaction, shall be subject to imprisonment up to one year and to a fine up to 10,000 marks, or to only one of these penalties.

Some such restrictive legislative action appears to be an imperative necessity, to prevent the damage that results from the increasing vogue of quackery.

Statistics recently published by the federal bureau of health show that on Dec. 31, 1928, Germany had a total of 12,098 quacks or, as they are euphoniously styled, *laienbehandler*, or lay practitioners. Of that number, 2,803 were women. The term *laienbehandler* is applied by the federal bureau of health to persons who, though holding no medical license, attend or treat the sick as a commercial transaction. Of these 12,000 *laienbehandler*, or lay practitioners, 62 per cent were in urban and 38 per cent were in rural districts. As compared with 1927, the number of quacks had increased in 1928 by 337. From their varying numbers in different regions, it is evident that quackery finds its most fruitful soil in urban and industrial sections, whereas in rural districts, in spite of the fact that there are few physicians, it is much less in vogue. Quackery, it will be seen, does not prosper merely in regions in which there is a dearth of physicians but also in sections in which the supply of good physicians is ample. The development of quackery is evidence of the mental distress of our times.

Hamburg has the highest percentage of quacks, 9.48 per 10,000 inhabitants. Saxony follows with 3.33 per 10,000; Berlin with 3.01; Bremen, 2.81; Schleswig-Holstein, 1.98; Hessen-Nassau, 1.97; Rhine Province, 1.91; Lower Silesia, 1.90; Westphalia, 1.87. The smallest percentage of quacks is found in Waldeck (0.35) and in Mecklenburg-Schwerin (0.41 per 10,000 inhabitants).—Berlin Letter, July 21, 1930. *Jour. A. M. A.*, Aug. 16, 1930.

HIGH BLOOD PRESSURE AND LONGEVITY

David Riesman, Philadelphia (*Journal A. M. A.*, April 4, 1931), cites five cases illustrating the compatibility of hypertension with longevity. One of the cases shows that even the arteriosclerotic form of hypertension is compatible with fairly long life. These cases, however, do not alter the fundamental fact that high blood pressure is not a bodily virtue. It is necessary to pick out the good cases from the bad so that one may be able to say to a given patient whether he has a chance to live long or whether an early death awaits him and that he had better make his will. In teaching, not enough attention has been paid to the art of prognosis. It is by the skill in this art that the public often judges the medical profession. Some of the means the physician has of foretelling the future of the hypertensive individual are indicated. One must always corre-

late the blood pressure with the age of the patient. Old persons bear high blood pressure better than younger ones. The height of the systolic pressure is not a reliable criterion unless it is excessively high. The patient's whole constitution must be weighed in the balance. More important than the systolic is the diastolic pressure. A high diastolic pressure is a bad prognostic sign. Heredity to a great extent determines longevity. Longevity as well as its opposite is largely an inherited trait. Not enough attention has been paid to this by geneticists, but it is as striking a familial trait as the color of the eyes, the conformation of the head, or any other physical feature. Therefore, in a hypertensive patient who exhibits nothing else of moment save the hypertension, the prognosis is favorably influenced if he comes of a long-lived family. Much can be learned about a patient's general prospects by studying his temper and the influences that play on it. Irrascibility is not conducive to longevity in the face of hypertension. The more fully a physician explains these matters to his patients, the better will be their cooperation. From the physical standpoint the prognosis is influenced by the size of the heart, the state of the arteries, the kidney function, the eyegrounds and the coexistence of diabetes.

COMPLETE STRICTURE OF COMMON AND HEPATIC DUCTS

Waltman Walters, Rochester, Minn. (*Journal A. M. A.*, April 4, 1931), reports five cases in which purposeful external biliary fistulas were transplanted into the stomach or duodenum for the relief of biliary obstruction due to stricture of the common bile duct, so extensive that there was not enough normal duct to enable anastomosis into the duodenum. In two of the cases the results have been excellent. There has been no evidence of further biliary obstruction. One of these patients was operated on two and a half years ago. Two of the patients had good results. They have been relieved of the constant jaundice and itching and have improved in health and gained in weight, but at times have had indications of either stasis of bile or cholangitis evidenced by transient jaundice or mild pain. One patient died the fifth day after operation, from hepatic insufficiency and intra-abdominal hemorrhage. She had been jaundiced for years prior to the transplantation of the fistula.

CHRONIC STRIDOR IN CHILDHOOD

According to Roger L. J. Kennedy and Gordon B. New, Rochester, Minn. (*Journal A. M. A.*, April 18, 1931), the diagnosis of enlarged thymus is frequently made in cases in which further examination has disclosed other conditions as the cause of symptoms. Stridor, dyspnea, hoarseness, spells of cyanosis and wheezy and noisy respiration can usually be accounted for on other bases than that of enlarged thymus. Laryngoscopic examination is frequently essential for definite diagnosis. Enlargement of the thymus can seldom, if ever, be established as a cause of death. Preoperative examination and care of infants and children should be di-

rected toward finding and correcting all conditions affecting surgical risk. Unwarranted publicity has been accorded the assumption that enlargement of the thymus accounts for much morbidity and mortality in infancy and childhood. In the author's experience it has been unnecessary to carry out preoperative roentgen treatment of the thymus.

CAUSES OF FAILURE IN INJECTION TREATMENT OF VARICOSE VEINS

H. O. McPheeters, Charles E. Merkert and R. A. Lundblad, Minneapolis (*Journal A. M. A.*, April 4, 1931), believe that recurrences of varicose veins following the injection treatment are due to too great dilution of the sclerosing fluid or insufficient concentration of the fluid; failure to thrombose the great saphenous vein in the thigh completely even to the saphenofemoral opening, and normal recanalization, which is Nature's natural effort if the thrombosis is not firm and hard. To prevent recurrences, the operator should: 1. Locate the great saphenous trunk by the percussion method and sclerose it up to the saphenofemoral opening. 2. Empty the veins before injecting, to aid concentration. 3. Localize the sclerosing fluid by the use of tourniquets or the Mac occluders, so as to prevent excessive dilution. 4. Choose sclerosing solutions according to the type and size of veins; for the small, thin walled veins he should use milder solutions, such as invert sugar, for large saccular veins, dextrose with sodium chloride combinations and for the pick-ups, the quinine and urethane solutions. The authors have discarded the use of salicylates because of the severe pain and cramp. 5. Observe the patient till all the varicose veins are sclerosed satisfactorily. 6. Have the patient return in two months after discharge for check-up and at longer intervals after that. Precautions as to the injections are to: 1. Employ sterile technic. 2. Be sure that the injection is made within the lumen of the vein. 3. Stop the injection immediately when there is doubt as to whether or not the solution is going into the lumen. 4. If a perivascular injection has been made it is best to infiltrate the area of the injection with from 10 to 20 cc. of physiologic solution of sodium chloride. 5. Apply sponge pressure to prevent leakage when the needle is withdrawn or in case the vein wall has been punctured. 6. Observe the patient every other day for from six to ten days following the initial treatment and then in two months, and see the patient at two to four month intervals after that. Yearly inspection is advisable.

FACTS AND FALLACIES CONCERNING FOREIGN PROTEIN AND VACCINE THERAPY

Striking results, including numerous instances of clinical improvement, have been noted by Ernest E. Irons, Chicago (*Journal A. M. A.*, April 18, 1931), following the use of protein shock therapy. For the most part these have been seen in acute conditions rather than in those of long duration. As a routine and sole method of treatment, the case for protein therapy has not been proved. It is necessary here to distinguish, from this large group, methods of specific immunization

and desensitization employed to relieve the symptoms of sensitiveness to specific known proteins such as those of some pollens and foods. Whenever it is proposed to use protein shock therapy, in a special case, due consideration should be given to possible serious and unexpected outcomes. The present wave of popularity of injections of foreign proteins for diseases of all descriptions is likely soon to pass, as have other modes and styles.

RUPTURE OF SPLEEN IN MALARIAL THERAPY IN SYPHILIS

S. H. Polayes and Max Lederer, Brooklyn (*Journal A. M. A.*, April 4, 1931), give abstracts of eight cases of rupture of the spleen in malarial therapy in syphilis reported in the literature and to these add a case that they observed. They state that spontaneous rupture of the spleen occurs much more frequently in cases of induced malaria for syphilis of the central nervous system than in naturally acquired malaria. The usual changes predisposing to rupture, namely, enlargement and softening, are not present in spleens of patients suffering from syphilis of the central nervous system prior to induction of malaria. The increase in fibrous tissue in the capsule and septums with resultant loss of elasticity that occurs in syphilis does, however, predispose to spontaneous rupture. The symptomatology of the complication is briefly described and the importance of its early recognition is emphasized. A plea is made for more careful choice of patients who are to receive malarial therapy to avoid the possible fatal complication—rupture of the spleen.

PNEUMONOCOCCIOSIS IN IRON MINERS

George B. Lawson, W. P. Jackson and J. E. Gardner, Roanoke, Va. (*Journal A. M. A.*, April 4, 1931), emphasize that operators of air drills working four or five years in an atmosphere heavily laden with iron ore and silica dust may develop distressing symptoms of lung fibrosis after they have discontinued mining and have lived from four to eight years in apparently good physical and hygienic conditions. The fact that such operators at the time of their retirement from years of exposure to iron and silica dust have no symptoms may have but little bearing on the future progress of their disease. This form of lung fibrosis is not merely a cumulative action of dust but is a result, a stage of the disease which requires for its development a certain amount of time after the heavy inhalation of dust. This marked secondary fibrosis is comparatively rapid in its development.

CAUSES OF FAILURE IN TREATMENT OF VARICOSE VEINS

Géza de Takáts, Chicago (*Journal A. M. A.*, April 4, 1931), states that today it is no longer necessary to fight for the principle of injection treatment, but rather to emphasize the possible errors and mistakes that are frequently made in a type of procedure which is so easily accessible to both physician and patient. There is hardly anything more instructive than to go over

the possible mistakes in diagnosis, the indications and the errors in selecting the proper time and proper type of treatment and in choosing the best solution for the individual case. By avoiding errors in the technic of injections, together with the prevention, early recognition and adequate treatment of sloughs, and by adhering to a systematic follow-up and treatment of recurrences, a physician will doubtless improve his results and render a valuable and economically important service to the community. Under mistakes in diagnosis, in indications, in the type of treatment, in the technic of injections, in the selection of the proper solution to be injected, in the prevention and treatment of untoward reactions, and in the after-treatment and follow-up of patients, the author enumerates a few of the most common mistakes in the treatment of varicose veins.

INDISPENSABLE USES OF NARCOTICS

In considering the need for narcotics in otolaryngology, Robert Sonnenschein, Chicago (*Journal A. M. A.*, April 18, 1931), separates the cases into two groups: those in which their use is really indispensable, and those in which the administration of narcotics is highly desirable but not indispensable; in other words, there are absolute and relative indications. With reference to the conditions in which narcotics are indispensable, there are, first of all, intranasal work, intralaryngeal manipulations and operations under local anesthesia, all of which require cocaine; but great care must be observed in its use. For bronchoscopy it is essential when a local anesthesia is desirable, but some operators consider it not only needless but harmful when doing this work in children. In many cases, because of its toxicity, a substitute for cocaine is employed, such as procaine hydrochloride, butyn, and similar preparations; this is especially true of tonsillectomy and other throat operations. In the second group, morphine and scopolamine are very desirable as preoperative measures in cases such as mastoiditis, radical nasal accessory sinus operations or extensive laryngeal operation such as laryngofissure or laryngectomy. They are, however, not entirely indispensable because other sedatives, such as the barbit derivatives or bromides, may be used in their place.

OCCUPATIONAL NYSTAGMUS IN TRAIN DISPATCHERS

Carey P. McCord, Cincinnati (*Journal A. M. A.*, April 4, 1931), reports that among the 121 train dispatchers examined, in widely separated sections of the country and from seventeen railroads, occupational nystagmus was detected, involving 81 individuals, or 67 per cent. In addition, in two cities, among 30 persons examined, 22, or 70 per cent, presented this condition. The nystagmus found was essentially all horizontal, with marked variation in the rate of motion, and with some variation in the rates for the two eyes. This train dispatchers' nystagmus appears to be unassociated with aural conditions, although occupational deafness of 56.2 per cent. has been noted, which is more commonly present in the left ear on account of the wearing of

the hearing mechanism of that ear. It is believed that the noises common to train dispatching are responsible for the occupational deafness. The nystagmus encountered among train dispatchers is accepted as occupational in origin and is attributed to the continual motion of the large paper train sheet beneath the eyes, and the movement of the head and eyes over the train sheet, both necessary in the continual recording of data concerning train movement. It is maintained that the high frequency of the use of eyes in connection with train sheet work leads to overworking of the ocular mechanism, resulting in a nervous syndrome characterized by nystagmus, blepharospasm, some visual impairment and ocular discomfort. This occupational nystagmus of train dispatchers is less severe than the average of miners' nystagmus, and no case has been encountered that in itself was to be accepted as the cause of total disability.

IRON AND COPPER IN TREATMENT OF ANEMIA IN CHILDREN

As there is still some controversy in the literature as to the effects of iron in the treatment of anemia in children, it occurred to Milton Smith Lewis, Nashville, Tenn. (*Journal A. M. A.*, April 4, 1931), that it was of considerable importance to determine whether the effect of iron could be enhanced by the addition of copper, and it was felt that a study of the therapeutic action of these two elements may help to demonstrate their value or lack of value as possible therapeutic agents in the treatment of anemia in children. It was found that iron and copper given in combination to thirty-four children with nutritional and secondary anemia was more effective than iron given alone. This was particularly noticeable in the nutritional series.

MASTOIDITIS AND LATERAL SINUS THROMBOSIS IN INFANT

LOUIS H. SEGAR and WALTER STOEFLER, Indianapolis (*Journal A. M. A.*, Feb. 28, 1931), assert that mastoiditis in children is considered less dangerous than in adults and the urgency for surgical intervention less immediate. The bony cortex in a child is thin and the direction of the inflammation is usually external, causing carious erosion of the cortex and consequent escape of pus under pressure. Occasionally, the mastoid infection extends into the intracranial cavity, probably along the free communication between the lymphatic and blood vessels of the middle ear and mastoid and the interior of the skull, provided by the ununited petrosquamous suture. Because of this relationship, children frequently develop an otitic meningitis or other intracranial complication without evidence that an aural lesion is present. The most important element in the case of an infant observed by the authors was the normal appearance of the right ear drum in the presence of a mastoiditis. There must have been pus under pressure in the mastoid on the third or fourth day of the illness, as the first specimen of spinal fluid obtained on the fifth day contained a large amount of pus, evidence that the sinus thrombosis had formed some time

previously and that the infection had spread to the meninges. It is probable that the mastoid infection was present on the first day of the illness, the staphylococcus having been implanted there at the time of the respiratory infection one week previous to the onset of the last illness. Any departure from the normal appearance of the tympanic membrane would have been, in this patient, the only clue to the existing pathologic condition. It seems doubtful that a mastoid operation and ligation of the internal jugular vein on the day of admission would have changed the outcome. Nevertheless, that procedure would have been indicated had any clue to the mastoid infection been discovered.

INDISPENSABLE USES OF NARCOTICS

Horatio C. Wood, Jr., Philadelphia (*Journal A. M. A.*, April 4, 1931), prefaces his enumeration of the therapeutic uses of narcotic drugs with the statement that there are certain facts concerning opium or cocaine and their derivatives that should be borne in mind. First, they are valuable therapeutic agents; to banish them from the materia medica is to work an unjustifiable hardship on suffering humanity. Second, the habitual use of them is a real menace to the welfare of society, which should be combated with every weapon available. Third, the injudicious use of these substances as remedial agents has in many instances resulted in the formation of a habit. With a knowledge of these facts the conscientious physician will not hesitate to use them when necessity demands but, on the other hand, will try to avoid their employment whenever possible by the application of less dangerous measures.

DIAGNOSIS OF ACUTE MILIARY TUBERCULOSIS

Few diseases present such difficulty in diagnosis, from a purely clinical aspect, as does miliary tuberculosis; it will disguise itself in various forms and mislead one completely, unless the clinician has it in mind. The textbook and the standard teaching is, that after an individual has been ill of miliary tuberculosis for a few weeks there is bound to be marked asthenia and loss of weight, giving the impression of a very sick patient. It is a fallacy to be always guided by such signs. The really positive diagnostic aid which we possess today is the roentgen ray.—DR. MAX J. SCHROEDER, New York, in *M. J. and Record*, July, 1917, 1929.

THE COSTS OF MEDICAL EDUCATION

From a study of the reports of 1,161 students attending widely separated and various types of medical schools, R. G. LELAND, Chicago (*Journal A. M. A.*, Feb. 28, 1931), shows that the cost of medical education to the student for 1929-1930 averages slightly more than \$1,100. Tuition and fees and board and room call for 59 per cent. of the average total expense. Costs seem to be highest in the schools of the New England and Middle Atlantic states and most reasonable in the schools of the Pacific and Mountain states, with the South Atlantic states following closely.

CARDIOVASCULAR DISTURBANCES IN OBSTETRIC PATIENT

Twenty-four cases of heart disease in pregnant women are grouped in the order of seriousness and the various complications commented on by George Herrmann and E. L. King, New Orleans (*Journal A. M. A.*, Nov. 15, 1930). Disturbances in the mechanism of the heart beat in pregnant women are especially stressed. The importance of electrocardiographic studies, repeatedly done, in gravid cardiac patients is emphasized. Bundle branch block, its serious significance and the hopeful possibility of the temporary transient nature of the condition are demonstrated. Auriculoventricular block, fibrillation, and the less serious abnormalities and their effects in the cardiac function are commented on and illustrated. The state of the heart muscle is of the utmost significance. The alleviation of congestive heart failure before permitting labor or surgical delivery to proceed is found to be paramount for success. Ether was found to predispose to fatal pulmonary edema in patients with the lung congestion of mitral stenosis. Of general anesthetics, ethylene is the choice as far as the cardiac condition is concerned, but local anesthesia is by far the safest to use. Acute rheumatic endocarditis occurring during pregnancy responded to treatment and subsided about as it does in non-pregnant individuals. Extensive and usually fatal pulmonary thrombosis is shown to occur relatively frequently in instances of serious idiopathic myocardial degenerative changes.

CONGESTED PROSTATE AND VESICLES

Chronic congestion of the prostate and vesicles is a common condition. It is frequently not diagnosed or wrongly diagnosed as kidney or other diseases. The most common cause is sexual irregularities. The treatment consists in correcting these with a sexual hygiene program, together with local treatment to the prostate and vesicles in the most stubborn cases. The symptoms are very similar to those of chronic prostatitis. The results of proper treatment are, in most cases, excellent.—DR. R. W. BARNES, Los Angeles, in *Urol. & Cutan. Rev.*, Oct., 1929.

SURGERY OF THE KIDNEY

You can often feel a floating kidney better if the patient lies on the other side and draws up the knees.

It is wrong to operate on some movable kidneys. If by chance you find a movable kidney that has not caused symptoms, never tell the patient—but tell a friend.

You may be sure that an operation for nephroptosis will never cure the patient suffering from Glenard's disease.

Never use turpentine, mercury, potassium iodide, or cantharides on nephritic patients without knowing that you may suddenly cause complete anuria and death by so doing.

When you find albuminuria without other signs of nephritis, look for stone in the kidney.

Pain in the region of the kidney is more often due to other conditions than to calculus.

Never think that because a patient looks well he cannot have renal or vesical tuberculosis or cancer of the bladder—the cachexia comes late in them.

Any rapidly growing tumor in the abdomen of a child is more likely to be a renal sarcoma than anything else.

—Bernays "Golden Rules of Surgery."

APPENDICITIS

In cases of suspected appendicitis, where the diagnosis is difficult, the three following signs may be helpful:

1.—*Cope's obturator test.* Flex the right thigh and rotate the hip joint internally. This puts the obturator internus on the stretch. An inflamed appendix, in contact with and adherent to this muscle, will be irritated by this movement and pain will be experienced in the hypogastrium.

2.—*The Psoas test.* Place the patient on his left side, fully extend the hip joint and abduct the thigh. If the psoas muscle is in a state of irritation from its proximity to an inflamed appendix, this maneuver will bring on pain.

3.—*Edmund Owen's sign.* Even pressure is exerted over the pelvic colon. This forces gas into the cecum. If, when pressing the left iliac fossa, pain is appreciated in the right iliac fossa, the case is probably one of acute appendicitis.—HAMILTON BAILEY, F.R.C.S. (Eng.), in *Med. Rev. of Rev.*, March, 1929.

SUPRARENAL GLANDS AND HYPERTENSION

Histologic studies of sections of the suprarenal glands, obtained from the cadavers of patients with known essential hypertension, were made. Cases with primary cardiac or other disease which might have unduly influenced the blood pressure were excluded.

The results showed that there is a close relationship between increased functional activity of the suprarenal glands and hypertension. The lumens of the veins of the suprarenal glands are increased in hypertension, and the ratio of muscle to lumen in hypertension cases is twice as great as in cases with normal blood pressure.—DR. E. V. ALLEN, Rochester, Minn., in *Ann. Intern. Med.*, Aug., 1929.

INDISPENSABLE USES OF NARCOTICS

Throughout the years 1925 to 1929, R. B. Richardson, Toronto, and T. H. Weisenburg, Philadelphia (*Journal A. M. A.*, May 9, 1931), collaborated in the intimate study of 125 patients addicted to the use of "habit-forming drugs" and observed others to whom the same drugs were prescribed in the ordinary practice of medicine for the relief of pain and discomfort. This proved to their satisfaction that fewer narcotics would be administered for the alleviation of distress if those who practiced the healing art were more conversant with psychotherapy; that in psychotherapeutic principles there is a substitute for narcotics in many cases, and

when there is no alternative but to use habit-forming drugs on account of severe and prolonged pain, the amount prescribed should be kept to a minimum. The data collected from all sources were most convincing that there is no physical basis for the justification of a narcotic addiction: that it is entirely a developmental and psychologic problem, the only approach to which lies through the application of psychotherapeutic principles. Psychotherapy in terms of drug addiction means giving the patient something to live for. It is not possible to lay down precise rules for rendering their difficulties innocuous since no two personalities are composed of the same combination. It is necessary to study the mosaic of the patient's life to discover something that will blend with its coloring. It is a matter of transforming defeat into victory. This can be accomplished by fully understanding the patient's personality, environment, difficulties and outlook on life, and then with the infinite patience of a wise parent putting better things in his way. Fewer narcotics might be prescribed if those who treated human ills interpreted distress in terms of personality rather than in symptoms of the physical machine. It is not the intention to suggest or infer that narcotics might be banished from medical use. They still have their place; but he who prescribes such drugs on the least provocation is practicing medicine indolently.

CYSTS OF GRAAFIAN FOLLICLE AND CORPUS LUTEUM

H. P. Miller, Rock Island, Ill. (*Journal A. M. A.*, May 9, 1931), reports four cases of hemorrhage from a follicular cyst or a cyst of the corpus luteum. One case was a typical example of a massive intraabdominal hemorrhage closely resembling a ruptured tubal pregnancy even to the pain in the neck and shoulder. Three cases were of the moderate type and the form that is especially liable to be mistaken for something else. The treatment in all the cases consisted of resection of the cyst and closing the area with lock sutures of number 2 plain catgut. The author believes that these cases call for immediate operation because one has no way of knowing the extent to which bleeding may go. Undoubtedly, many small hemorrhages are overlooked. When the condition is thought of in differential diagnosis, the picture is fairly clear cut: when doubt exists, a diagnostic vaginal puncture should be made.

PARASITIC INFESTATION OF NOSE

Harold Liggett, New York (*Journal A. M. A.*, May 9, 1931), describes a case of infestation of the nose with larvae of the black carpet beetle (*Attagenus piceus* Oliv), an insect that infests carpets, mattresses and blankets. These larvae are exceptional in that they take two years to reach the adult stage. The insects were never seen in situ except on first examination by posterior rhinoscopy. But the appearance of larvae immediately following a sphenoid irrigation places them somewhere in the sphenoid-ethmoidal recess. It is very

possible that the larvae lodged in the sphenoid sinus, especially since only recently closer observation of the first return flow from the right sphenoid sinus revealed a tiny parasite, small enough to have escaped notice originally. The mother beetle must have crawled in and deposited her eggs in a dark and inaccessible location. This could well have been the ethmosphenoid recess. The larvae after hatching crawled around the nasal cavity and accessory sinuses, spreading the subsequent rhinitis and sinusitis.

TYPHOID IN LARGE CITIES OF UNITED STATES IN 1930

This report concerns ninety-three cities of more than 100,000 population. This is an increase of twenty-five cities over the 1920 enumeration and a population increase of more than 8,500,000. Whereas in 1920 there were in the sixty-eight cities of more than 100,000 a total population of 27,735,000 persons, comprising 26 per cent. of the population of the continental United States, in 1930 in the ninety-three cities of this size there were 36,326,000 persons, about 30 per cent. of the total population of the country. The total typhoid mortality rate in 1930 in the seventy-eight cities for which records are available beginning with 1910 was almost exactly the same (1.61) as that for 1929 (1.59). Similar halts in the steady typhoid diminution have been noticed three other times in the past twenty years: in 1913, 1921 and 1925. After each pause the downward progress was resumed. There is no reason to suppose that typhoid reduction in the large cities of the United States has been permanently checked.

DIAGNOSIS AND MANAGEMENT OF THE ALLERGIC CHILD

A child suffering from the so-called allergic syndromes of asthma, eczema, urticaria and hay-fever is viewed by Bret Ratner, New York (*Journal A. M. A.*, Feb. 21, 1931), from the standpoint of protein hypersensitiveness. A carefully taken and thoroughly analyzed history is essential. This should include not only the history of a typical attack in its relation to foods, contact with animals, season of the year, time of occurrence and locality, but also a broad and general history of the case as a whole. In addition to the history, a complete physical examination and laboratory tests such as chemical examination of the blood, cytologic studies and roentgenograms should be made and from 300 to 400 protein skin tests performed on each child by the scratch method. The author believes that etiologic factors such as sensitization in utero, sensitization by passage of antigen through the intestinal tract, and sensitization through inhalation of antigenic dusts are of paramount importance. The management of the allergic child and a study of its progress under the careful regimen described presents evidence that specific protein hypersensitiveness is as basically important to allergy as the tubercle bacillus is to tuberculosis. He hesitates to extol the virtues of so complex and still immature a subject as allergy, but an analysis of cases studied over

a period of years sanctions his form of management as a sound therapeutic procedure.

TROPICAL RAT MITE, *LIPONYSSUS BACOTI* HIRST, 1914

Approximately 200 cases of "rat mite dermatitis" are reported by Bedford Shelmire, Dallas, Texas, and Walter E. Dove, Charleston, S. C. (*Journal A. M. A.*, Feb. 21, 1931), from Dallas, Texas, and neighboring towns. From persons having evidence of mite bites, and from the residences or places of work of such persons, mites were collected and identified as *Liponyssus bacoti* Hirst. At Dallas, Fort Worth, Henderson and Longview, Texas, mites were collected from rats and were identified as *Liponyssus bacoti*. At Dallas, Fort Worth, Henderson and Longview, 11 proved cases and approximately 125 cases of suspected endemic typhus are reported. From tests on persons recovering from endemic typhus it appears that agglutinins are present in the blood stream only for short periods of time. The advent and coincidental occurrence of endemic typhus and the tropical rat mite in northern and eastern Texas suggest that these parasites may be vectors of the disease.

URETERAL ANOMALIES

Frederick T. Lau and Roy B. Henline, New York (*Journal A. M. A.*, Feb. 21, 1931), report the case of a woman with three ureters on one side with one ending blindly in an aplastic kidney and with a bifid pelvis with a single ureter on the other side.

OSTEOMYELITIS VARIOLOSA

C. F. Eikenbary and John F. LeCocq, Seattle (*Journal A. M. A.*, Feb. 21, 1931), state that often the diagnosis of osteomyelitis variolosa is not made during the acute stages of the disease. The patients with smallpox who develop the bone complications do not show deformities until after the attack of smallpox. It is obvious that these deformities would not occur in adults who have had smallpox during adult life, because bone growth has occurred and the virus of the smallpox apparently affects only the epiphyseal lines of the bone. Adults would for that reason not develop these deformities. Therefore, the deformities will occur if variola has been present during childhood or before the closure of the epiphyseal lines has occurred. The individual consulting the physician does so because of deformity which is present or which may be becoming progressively more marked. In none of three cases reported were there complaints of pain, except because of static disturbances. On the basis of their observations in these cases the authors conclude that: 1. The virus of smallpox undoubtedly causes a nonsuppurative osteomyelitis. 2. The site of election of the virus apparently is in the epiphyseal lines of the long bones. 3. The effect of the virus is to produce an aseptic necrosis which apparently chiefly affects the growing cartilage cells of the epiphyseal lines and causes premature closures. 4. Deformities are caused by the in-

equality of growth in the long bones. 5. In obscure deformities a careful history of variola in childhood should be obtained.

POSTERIOR URETHRAL VALVE OBSTRUCTION IN INFANCY AND CHILDHOOD

Meredith F. Campbell, New York (*Journal A. M. A.*, Feb. 21, 1931), believes that with more careful attention to urologic symptoms and with wider application of technical urologic diagnostic procedures in children, a far greater incidence of urethral valve obstruction (as well as numerous other forms of serious urinary tract disease) will be found. The valves are congenital; the embryonic mechanism of their formation is unknown. Symptoms are those of infravesical obstruction plus renal damage. The diagnosis is easy to make if one will employ cystography and cysto-urethroscopy. A careful preoperative treatment with gradual bladder decompression and continuous drainage when indicated together with a large fluid intake is imperative for successful surgical results. Removal of the obstructing valves by the cutting current is strongly advocated because (1) it may be carried out under vision, (2) there is a minimum of surgical shock or disturbance of the urinary tract after operation, and (3) thoroughly satisfactory results are obtainable.

SOLITARY SEROUS RENAL CYSTS

According to Robert Herbst, Chicago, and William J. Vynalek, Berwyn, Ill. (*Journal A. M. A.*, Feb. 21, 1931), solitary serous renal cysts, though uncommon clinically, are not so rare but that they warrant consideration and elimination in all tumor masses of the abdomen. With increasing data available from the numerous cases being reported, it is probable that a preoperative diagnosis will be made more frequently. The roentgenogram may show: (a) a normal pyelogram; (b) pyelectasis; (c) compression of the calices or the true pelvis; (d) change in position and axis of the kidney; (e) the outline of the shadow of the cyst itself, or (f) calcification of the cyst wall. A most important and frequent roentgenographic finding is the outline of the shadow of the cyst itself, in close approximation to the solid renal shadow and with density in marked contrast to that organ. A careful search should always be made for this shadow. It is more likely to be overlooked on a plain film than with the pyelogram. A cyst large enough to cause clinical symptoms is often associated with an abnormal pyelogram, which, though seldom absolutely typical of the cyst, nevertheless calls attention to pathologic changes in the kidneys. Resection of a wedge-shaped portion of renal tissue with the cyst is the treatment of choice. This method is less likely to be followed by secondary hemorrhage than the attempt at mere resection of the cyst wall. Rarely can the latter be shelled from its renal bed. The kidney should be fixed in place by sutures to prevent post-operative ptosis in the resulting cavity. Nephrectomy should be carried out only in cases of extreme renal damage or suspected associated cancer. Six cases of solitary serous renal cysts are reported, five of which

were diagnosed correctly, before operation, the sixth, a hemorrhagic cyst, as a renal tumor, all by virtue of roentgen observations.

INCIDENCE OF BRAIN TUMORS IN EPILEPSY

Nicholas Gotten, Philadelphia (*Journal A. M. A.*, April 4, 1931), presents three cases of brain tumor, disclosed in the routine encephalographic studies made on fifty-six epileptic patients in whom the only prominent symptoms were convulsions. One of the cases had been diagnosed as idiopathic epilepsy, one as symptomatic convulsions of hypertension, and the other as post-traumatic (operative) jacksonian epilepsy. The proportion of unsuspected focal lesions in this sort of condition is therefore 5.3 per cent. The beneficial results of early recognition and removal of the tumor is evident and the use of encephalography as a diagnostic procedure is of great value in establishing the characteristics and pathologic changes associated with convulsive seizures. In each of the cases presented, convulsions were the initial symptom; in two cases, clinical neurologic signs were not sufficient to establish the presence or localization of brain tumor, and as there were no signs of generalized intracranial pressure there appeared to be no reason for suspecting such lesions. The use of encephalography for diagnosis and localization of organic lesions of the brain is therefore of great value. When properly undertaken with due regard to technic and contraindications, it is a safe and justifiable procedure attended with little risk. The advantages of early recognition of brain tumors and their removal before signs of intracranial pressure develop has given a most satisfactory symptomatic and clinical relief.

THE GLAND OF IMMUNITY

Carefully conducted experiments indicate that the long-sought endocrine "gland of immunity" is the endothelium of the capillaries. When this structure is seriously interfered with, the production of immune bodies is greatly decreased.—*J. A. M. A.*, Nov. 30, 1929.

Society Proceedings

COOK COUNTY

CHICAGO ROENTGEN SOCIETY

Meeting, May 13, 1931

SYMPOSIUM ON THE USE OF IODIZED OILS

1. The Uses of Iodized Oils in the Diagnosis of Chest Diseases.....Carl Hedblom
 2. The Uses of Iodized Oils in the Diagnosis of Uterine and Tubal Diseases.....Irving F. Stein
 3. The Diagnosis of Fetal Monstrosities and Anomalies in Utero.....Frederick Falls
- Edward L. Jenkinson, Pres. George M. Landau, Sec.

CHICAGO MEDICAL SOCIETY

Joint Meeting with Chicago Pediatric Society and Visiting Nurse Association, May 20, 1931

The Use of Preventive Medical Service for Children in

146 Cities of the Country.....George T. Palmer
Director, Research of the National Child Health Ass'n.
Discussion by Clifford Grulee and Isaac Abt.

Personals

Dr. Benjamin Goldberg resigned as medical director of the Chicago Municipal Tuberculosis Sanitarium, April 29.

Dr. Robert Graham, Chicago, addressed the Peoria City Medical Society, April 21, on "Some Phases of Comparative Pathology."

Dr. Charles M. Jacobs, among others, addressed the Chicago Orthopedic Club, May 8, on "Boehler Treatment of Fractures."

Dr. W. Thomas Roberts, Metropolis, has been appointed health officer for Massac, Pope, Hardin and Johnson counties.

Dr. William C. Dixon recently retired as health commissioner of Danville, after having served ten years.

The Chicago Surgical Society was addressed, May 1, among others, by Dr. Percival Bailey on "Neuralgias of the Cranial Nerves."

Dr. Harry O. Collins was elected health officer of Quincy, April 17, to succeed Dr. Thomas W. Rhodes, who has held the position for five and a half years.

Dr. John D. Foley has been appointed health officer of Waukegan, succeeding Dr. Howard C. Hoag, who held the position for eight years.

Dr. Orval M. Dickerson, Cairo, has been appointed a district health officer, his territory to include Alexander, Pulaski and Union counties.

Dr. Edward Lee Dorsett, St. Louis, addressed the Peoria City Medical Society, May 20, on "Management of Breech Presentation."

Karl F. Meyer, Ph. D., of the Hooper Foundation for Medical Research, San Francisco, addressed the Bacteriology Club of the University of Chicago, May 8, on "Undulant Fever."

Dr. John E. Reed, Benton, has been appointed division superintendent of public health; the primary work of the five men under his direction will be the eradication of malaria in southern Illinois.

Drs. Chester C. Guy and George L. Rand, among others, addressed the Chicago Pathological Society, May 11, on "Congenital Diaphragmatic Hernia Associated with an Accessory Lung."

Dr. Andy Hall, state health officer, among others, addressed a joint meeting of the Douglas County Medical Society and several civic clubs at Newman, April 24, on "Conservation of Health and Life."

Drs. Harry M. Hedge and Jacob P. Greenhill, Chicago, addressed the La Salle County Medical Society, April 30, on "Modern Conceptions Concerning the Treatment of Syphilis" and "The Present-Day Treatment of Placenta Praevia and Abruptio Placentae."

Dr. Donald W. Tripodi has been appointed superintendent of the Livingston County Tuberculosis Sanatorium, Pontiac, succeeding Dr. John K. Shumate, who resigned to accept a similar position in the Pure Air Sanatorium near Bayfield, Wis.

Dr. Herman N. Bundesen, coroner of Cook County since 1928, was appointed health commissioner of Chicago by the newly elected mayor of Chicago, Anton J. Cermak. Dr. Bundesen held the position from 1922 to 1927.

The Adams County Medical Society was addressed at Quincy, May 11, by Drs. Scott J. Wilkinson, Wilbur Stuart Wood and Cecil M. Jack, all of Decatur, on "Relationship of Physical Defect in Children," "Fractures" and "Value of an Observation Section in a Tuberculosis Sanatorium," respectively.

At the annual conference dinner of the medical subchapter, Cook County Chapter, of the Reserve Officers Association, U. S. Army, May 18, Col. Charles R. Reynolds, Carlisle Barracks, Pa., delivered the principal address on field training for medical officers at Carlisle Barracks.

Dr. Merritt Paul Starr addressed the Henry County Medical Society, April 30, at Kewanee on "Thyroid and Parathyroid Disease with Reference to the Management of Thermal Crises, Thyrocardiac Patients, Hypothyroidism and Parathyroid Tetany"; Dr. Aloysius James Larkin, Chicago, spoke on "Cancer, Its Modern Treatment."

Dr. Alice Hamilton, who was formerly assistant professor of industrial hygiene, Harvard University Medical School, delivered the Gehrman Lectures at the University of Illinois College of Medicine, May 12-14. The subjects of her three addresses were "Lead Poisoning," "Arsenical Poisoning—Mercurialism Silicosis," and "Poi-

soning from Volatile Solvents." The lectureship was endowed by the family of Adolph Gehrman, professor of bacteriology and hygiene from 1894 to 1918, who died in 1920. The lectures are given each year on some phase of hygiene and public health.

Drs. William F. Petersen, Lloyd L. Arnold and Mrs. M. Milliken, among others, addressed the Chicago Society of Internal Medicine, May 25, on "Menstrual Cycle and Focal Reactions."

Drs. Sydney Walker, Jr., and Oscar B. Nugent addressed the Chicago Ophthalmological Society, May 18, on "Legal Phases of Industrial Ophthalmology" and "Pathology and Management of Intra-Ocular Foreign Bodies," respectively.

Dr. James H. Hutton addressed the Marion County Medical Society on Endocrine Therapy.

Maurice B. Visscher, Professor of Physiology and Pharmacology, University of Southern California, has been appointed Professor of Physiology at the University of Illinois College of Medicine in Chicago.

Maurice L. Blatt gave an address for the Parent-Teacher Association of the John Mills School, Elmwood Park, May 29. His subject was "The Children's Charter, What It Means to the Child."

Arthur H. Parmalee and William H. Holmes gave the scientific program at the May 26 meeting of the Fulton County Medical Society, on the subjects: "Observations on Breast Feeding" and "Nephritis."

Don C. Sutton and Maurice L. Blatt read papers on "Heart Diseases" and "Neurological Disturbances in Childhood" at the May 26 meeting of the La Salle County Medical Society.

Frederick B. Balmer will address the Vermilion County Medical Society on Tuesday evening, June 2. Subject, "The Doctor and His Financial Problems—Professional and Personal."

Dr. Charles Davison, Professor of Surgery, Emeritus, of the University of Illinois College of Medicine, delivered an address at the Medical Historical Club at the Quine Library, May 6, on "Reminiscences," and devoted chiefly to the medical history of the West Side of Chicago.

Dr. Henry C. Niblack, Chief of the Bureau of Child Hygiene, Chicago Department of Health,

was the speaker for WGN Health Hour, May 6, on the subject, "The Importance of Promoting the Health of Children," and on May 27, on the subject, "Health of the Pre-School Child."

Dr. Harold Swanberg, Quincy, announces the association of Dr. Arthur E. Perley, graduate of department of radiology, Graduate School of Medicine, University of Pennsylvania, with the Quincy X-Ray and Radium Laboratories.

Dr. B. Barker Beeson, Chicago, has been elected an honorary member of the Société Française de Prophylaxie Sanitaire et Morale.

News Notes

—The College of Medicine of the University of Illinois Chapter of the Sigma Xi held a meeting for the initiation of new members, May 20, 1931. At this meeting Dr. F. R. Moulton, Past National President and Member of the National Executive Council, presented greetings from the National Organization. Greetings from Northwestern Chapter were presented by Dr. F. D. Barker, President, and from the University of Chicago Chapter by Dr. E. S. Bastin, vice-president of the chapter. The Scientific discourse was given by Dr. O. F. Kampmeier on "The Origin and Development of the Human Thoracic Duct."

—The Chicago Gynecological Society was addressed, May 15, by Drs. Louis Rudolph on "The Posture in the Cardiopath During Pregnancy and Labor"; Harry O. Maryan, "Bacteriology and Pathology of Chronic Cervicitis," and Richard Torpin, "Placenta Circumvallata and the Theory of Its Formation."

—A banquet was recently given by the Perry County Medical Society in honor of Drs. Martin C. Carr and James T. Leigh, Du Quoin, and James W. Smith, Cutler, all of whom have been in the practice of medicine fifty years or more. Drs. Roy H. Milligan, Samuel B. Westlake and Lee B. Harrison, all of St. Louis, spoke on "Otolological Problems of General Medicine," "Cancer of the Larynx," and "Common Cardiac Ailments," respectively.

—The board of trustees of the University of Illinois has adopted new requirements for entrance to the University of Illinois College of Medicine. Hereafter the students admitted must have gained an average of 3.5 on the uni-

versity method of grading; 3.5 is approximately equal to an average of 83 per cent. This means practically that the students selected will be from the upper third of their classes and will simplify materially the selection of students from the large number of applicants.

—Dr. Edward Starr Judd of the Mayo Foundation, Rochester, Minn., President-Elect, American Medical Association, gave the first address of the Mayo Lectureship in Surgery of Northwestern University Medical School at the Murphy Memorial, April 22, on "Fundamental Problems Associated with Disease of the Biliary Tract." This lectureship was endowed by Dr. Charles H. Mayo, Rochester, from the advancement of education and learning in surgery. Every fifth year the lecture is to be given by a foreign physician, the intervening four lectures to be given by American surgeons.

—The Central Interurban Clinical Club, which is comprised of internists from the University of Minnesota, Mayo Clinic, University of Iowa, Washington University, University of St. Louis, Rush Medical College, University of Chicago, Northwestern University and the universities of Wisconsin and Illinois met, May 2, in the morning at the University of Illinois College of Medicine and in the afternoon at Northwestern University. The club meets twice a year and spends a day in various teaching centers in order to become acquainted with new teaching methods and investigative advances.

—At the April, 1931, meeting of the Central Illinois Radiological Society, held at Peoria, Illinois, the Society voted to change its name to that of the Illinois Radiological Society in order to indicate more correctly the scope of its membership. This Society was largely organized by a small group of radiologists from Central Illinois in 1920, but has steadily grown and for years has had members in every section of the state.

The Illinois Radiological Society is one of the oldest state radiological societies in the West. At its recent Peoria meeting the Society, by unanimous vote of all present, voted to make The Radiological Review (63 East Lake Street, Chicago), its official publication.

The officers of the Society for 1931 are:

Dr. C. E. Morgan, Mattoon, President, and Dr. Fauntleroy Flinn, 220 South Webster street, Decatur, Secretary.

—A prize of \$500 is offered by the Institute of Medicine of Chicago for the most meritorious investigation in medicine, in the specialties of medicine or in the fundamental sciences, provided the work has a definite bearing on some medical problem, in a competition open to graduates of Chicago medical schools who have received their M.D. degrees during the year 1929 or thereafter. Manuscripts must be submitted to the secretary of the institute, 122 South Michigan Avenue, not later than December 31. The winner of the prize will be expected to present the results of his investigation before the institute at some meeting in 1932. If no paper presented is deemed worthy of the prize, the award may be withheld at the discretion of the board of governors.

—The new \$1,900,000 Lying-In Hospital at the University of Chicago was dedicated, April 29. The building, which has a capacity of 157 beds, contains eight delivery rooms, an amphitheater, a room equipped for making motion pictures, nine waiting rooms, and a "fathers' room." In each birth room is a clock that ticks every fifteen seconds, so that the physician may time the unborn infant's heart beats without using a watch. Dr. Joseph B. DeLee, who will continue as chief of staff, speaking at the dedication, traced the history of the institution from its beginning in 1894, when he organized a clinic for women in a four room flat near Hull House. Dr. John Whitridge Williams, Baltimore, guest speaker, compared the institution with the first maternity ward in history, a Paris cellar in the thirteenth century. The university will provide the attending staff of the new hospital, which will be under the supervision of Drs. DeLee and Fred L. Adair, professors of obstetrics and gynecology in the school of medicine. The four divisions within the hospital itself are the Main Building; the Max Epstein Clinic, a one-story wing; the Mothers' Aid Pavilion, which occupies the corner of Fifty-Ninth Street and Drexel Avenue, and the School Section adjoining the Mothers' Aid Pavilion.

—The Medical Research Club of the University of Illinois College of Medicine held its two hundredth meeting in the Library of the Research Laboratory Building, May 27. The following program was given:

Greetings from President Chase.

Greetings from the Graduate School—Dean A. H. Daniels.

The Origin and Aims of the Club—Dean D. J. Davis, first president of the Club.

X-Ray Diffraction of Studies of Natural Materials Including Human Tissues—Dr. George L. Clark, Professor of Chemistry, University of Illinois.

The Research Club was founded soon after the University of Illinois had taken over the College of Physicians and Surgeons, as the College of Medicine of the University. The influence of this Club on the intellectual life and atmosphere of the College of Medicine has been far-reaching. Since its formation, a Chapter of Sigma Xi, a Medical History Club, and a Clinical Conference have been founded. Each organization holds bi-weekly meetings. As a result of these organizations there are over 120 students from the Medical, Dental, and Pharmacy faculties registered in the Graduate School.

—The District Medical Society of Central Illinois held its 55th annual meeting in Pana, April 28, with clinics and papers by Springfield physicians.

The morning session was given over to Practical Clinics which held at the Huber Memorial Hospital.

The Medical Clinic by Dr. Herman Cole.

The Heart Clinic by Dr. S. E. Munson.

The Orthopedic Clinic by Dr. G. W. Staben.

The Skin Clinic by Dr. G. C. Hunt.

The Surgical Clinic by Dr. Don Deal.

The Tonsil Clinic by Dr. A. E. Walters.

Luncheon will be served at the Frances Hotel.

Immediately following luncheon the following papers were read and discussed:

"Intra-Thoracic Dynamics and Its Relation to Disease," by Dr. Herman Cole.

"Painful Backs," by Dr. D. J. Lewis.

"Meandering in Mexico," with motion pictures by Dr. Fred O'Hara.

The officers for the ensuing year are President, Dr. Herman Cole of Springfield, Illinois; Vice-President, Dr. Charles Lockhardt of Witt, Illinois; Dr. F. A. Martin of Pana, Illinois, Secy. and Treas. The Censors: J. F. Miller, Palmer, Illinois; H. E. Monroe, Shelbyville, Illinois, and Dr. D. M. Littlejohn, Pana, Illinois.

The next meeting will be held the last Tuesday in October, 1931.

—The second annual clinic day at St. Mary Hospital, Kankakee, May 12, was attended by nearly 100 doctors. The following program was given:

MORNING

G. E. IRWIN, M. D., Presiding

SECTION ON MEDICINE

5th floor—parlor A

Intracranial Hemorrhage of the Newborn—G. E. Irwin, M. D.

Eye, Ear, Nose and Throat Findings of Thyroid Dysfunction—J. H. Roth, M. D.

Chronic Heart Failure—N. T. Stevens, M. D.

Jaundice—K. N. Rayer, M. D.

Thymic Disease—G. H. Ayling, M. D.

SECTION ON SURGERY

5th floor

Op. Room 1. Thyroid—R. L. Benjamin, M. D.

Op. Room 2. Carcinoma of Breast—Eugene Cohn, M. D.

Op. Room 1. Retroversion Uteri—E. G. Wilson, M. D.

Op. Room 2. Pelvic Tumor—S. W. Lane, M. D.

Op. Room 1. Thyroid—E. S. Hamilton, M. D.

Luncheon—4th floor.

Inspection of Hospital.

AFTERNOON

Basement

J. R. Wilkinson, President County Medical Society, Presiding.

Colds in Children—Robt. A. Black, M. D., Chicago.

Heart Diseases—Arthur R. Elliott, M. D., Chicago.

Intestinal Obstruction—Wm. R. Cubbins, Chicago.

Fungus Diseases. Skin Clinic—Edward A. Oliver, M. D., Chicago.

EVENING

Gold Room, Hotel Kankakee

Complimentary Banquet (Informal). Arthur J. Cramp, M. D., Director, Bureau of Investigation, A. M. A., Speaker of the evening. "The Patent Medicine and The Public Health."

—Volume 6 of the Proceedings of the Interstate Postgraduate Medical Association of North America contains the 78 addresses of world authorities in medicine, surgery and the

specialties as presented at the International Assembly held at Minneapolis, October 20-24, 1930. The volume can be obtained from Dr. Edwin Henes, Jr., executive secretary, 759 North Milwaukee Street, Milwaukee, Wis.

Deaths

HENRY BRIGGS, Versailles, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1880; aged 77; died, March 29, of cerebral hemorrhage and arteriosclerosis.

GEORGE JUDSON BROWN, Chicago; National Medical University, Chicago, 1897; also a dentist; aged 62; died, April 2, of carcinoma of the throat.

JOSEPH FAIRHALL, Danville, Ill. (licensed, Illinois, 1896); member of the Illinois State Medical Society; aged 78; on the staff of the Lakeview Hospital, where he died, March 29, of cirrhosis of the liver.

LOUIS MADISON FENWICK, Chicago; Barnes Medical College, St. Louis, 1898; a Fellow, A. M. A.; aged 72; died, April 6, in St. Luke's Hospital, of heart disease.

JAY RILEY GARDNER, Chicago; Illinois Medical College, Chicago, 1907; aged 56; died, March 24, of cerebral hemorrhage and bronchopneumonia.

WILLIS TOWNSEND HINMAN, Moline, Ill.; Medical Department of the University of Illinois, Chicago, 1904; a Fellow, A. M. A.; on the staff of the Lutheran Hospital; aged 57; died, May 1, of carcinoma.

ROSE DAY HOWE, Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1908; aged 70; died, January 31, in Boonton, N. J., of cerebral hemorrhage.

FREMONT C. KNIGHT, Waukegan, Ill.; University of Buffalo (N. Y.) School of Medicine, 1880; a Fellow, A. M. A.; formerly county coroner; on the staff of the Victory Memorial Hospital; aged 74; died, April 30, of angina pectoris.

CHARLES RUDOLPH McDONALD, Carlock, Ill.; St. Louis University School of Medicine, 1904; aged 60; died, April 13, in the Brokaw Hospital, Normal, following an operation for carcinoma of the liver.

JOSEPH PRICE NOBLE, Bloomington, Ill.; Northwestern University Medical School, Chicago, 1893; member of the Illinois State Medical Society; aged 62; died, March 28, of heart disease.

GEORGE K. ROSENZWEIG, Chicago; Medical Department of the University of Illinois, Chicago, 1908; member of the Illinois State Medical Society; aged 49; died, May 11, of bacterial endocarditis.

WILLIAM E. WALSH, Morris, Ill.; McGill University Faculty of Medicine, Montreal, Quebec, Canada, 1892; a Fellow, A. M. A.; past president and secretary of the Grundy County Medical Society; aged 63; died, April 28, of angina pectoris.

PETER OTTO WIPPER, Chicago; Bennett Medical College, Chicago, 1910; aged 61; died, May 11, of cerebral hemorrhage, arteriosclerosis and diabetes mellitus.

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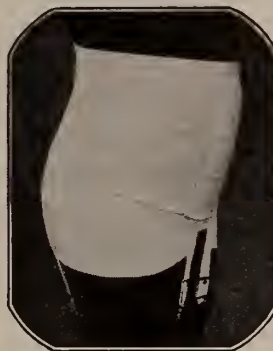


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News Notes

(Continued from Page 12)

RESISTANCE TO INFECTIOUS DISEASES. By Hans Zins-
ser, M. D. Fourth edition, completely revised and
reset. New York: The Macmillan Company. 1931.
Price \$7.00.

This work is an exposition of the biological phenom-
ena underlying the occurrence of infection and the re-
covery of the animal body from infectious disease, with
a consideration of the principles underlying specific di-
agnosis and therapeutic measures.

THE SEX FACTOR IN MARRIAGE. By Helena Wright.
New York: The Van Guard Press. 1931. Price
\$2.00.

THE MEDICAL CLINICS OF NORTH AMERICA. (Issued
serially, one number every other month.) Volume 14,
Number 5. (Chicago Number, March, 1931.) Oc-
tavo of 255 pages with 21 illustrations. Per clinic
year, July, 1930, to May, 1931. Paper, \$12.00; cloth,
\$16.00 net. Philadelphia and London: W. B. Saun-
ders Company, 1931.

The contributors to this number are Drs. Arthur F.
Abt; Arkin; Busch; Brams; Clarence G. Brown; Buch-
binder; Drennan; Finnerud; Gerstley; Goldsmith;
Hess; Ke; Murry; Robens; Schmitz; Scuphan; Sloan;
Salem; Trout; Cleveland J. White.

HEPATITIS

John B. Deaver, Philadelphia (*Journal A. M. A.*,
April 18, 1931), gives acute and chronic attacks, and
chronic with recurrent acute or subacute attacks of in-
fectious activity in the gallbladder region as forerun-
ners of hepatitis, varying from purely degenerative
changes to a mildly acute suppurative inflammation, to
chronic fibrosing, specific tissue-destroying processes
leading to early death from sepsis or to the late death
from toxemia and loss of liver function, preceded by
prolonged invalidism. The treatment of hepatitis is
both operative and non-operative. Operative treat-
ment may be preventive or curative. To be
preventive, it must be instituted early before
the infection has traveled on its devious
roads. This means that removal of the gallbladder
alone ordinarily suffices. But when the infection has
reached the liver, cholecystectomy is not sufficient.
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with T-tube drainage of the common duct will answer.
If the latter is carried out comparatively early, it may
still be preventive and head off a peripancreatic lymph-
adenitis as well as other sequelae. If common duct
drainage is not instituted until late, it may have to be
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